

LUDMAN

aluminum windows



LUDMAN
Auto-lok
AUTOMATIC LOCKING



Catalog AW 1955



and
INTERMEDIATE
PROJECTED
TYPES

AUTO-LOK WOOD AWNING WINDOWS

See SWEETS section $\frac{3c}{Lu}$

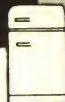
LUDMAN ALUMINUM FRAMED SLIDING GLASS DOORS

See SWEETS section $\frac{4a}{Lu}$

LUDMAN LEADS THE WORLD IN WINDOW ENGINEERING



SEALS TIGHTER
THAN A REFRIGERATOR



TIGHTEST CLOSING OUTSTANDING

closes ten times tighter than generally accepted standards

Patented Auto-Lok aluminum awning windows with torque bar operation and power light, strip-proof operator are the most versatile on the market for all applications . . . schools, hospitals, factories, hotels, apartments, churches, residences and office buildings, etc.

Patented Auto-Lok operation assures a lifetime of trouble-free service because Auto-Lok hardware eliminates the wear at critical hinge points that results in vents that cannot be closed tight. In all other windows where more than one vent is attached to a common operating bar and actuated by a single operator, force must be applied to the critical hinge points at the top of each vent in order to close the vent tight at the bottom. With patented Auto-Lok operation no destructive force is applied on the hinges. Ludman's torque bar, completely concealed in the sill, is required only to bring in the bottom night vent. Auto-Lok hardware is so perfectly balanced that the weight of the vents aids opening and closing without creating pressure on the operating mechanism. Therefore, the entire operation is friction free, effortless and smooth. Every vent in an Auto-Lok window closes tight automatically — always! There is no wear . . . no maintenance . . . no adjustment necessary.

weatherstripping

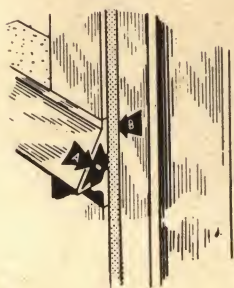
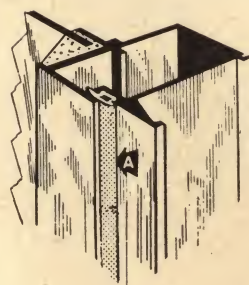
Auto-Lok Windows have brought a new meaning to the word "weatherstripped." Because they provide a degree of tight closure heretofore believed impossible, Auto-Lok Windows have established a new standard for window performance. Unique weatherstripping combined with patented self-locking action and double contact seals Auto-Lok just like the door of your refrigerator. Every closing surface is ingeniously weathered with extruded elastomeric vinyl*. When closed, the vents compress the weatherstripping against the frame forming a positive seal.

Auto-Lok provides the most effective closure known against cold winds, dust storms, driving rains and hurricanes. This tight closure eliminates uncomfortable "cold spots" around windows . . . reduces fuel and air conditioning expense.

*Exhaustive laboratory tests reveal that elastomeric vinyl weatherstripping will maintain its effectiveness for the life of the building.

Illustration shows how weatherstripping (A) is compressed when vent is closed against jamb.

Note how horizontal weatherstripping (A) crosses over vertical weatherstripping (B).



WINDOW WITH OPERATING PRINCIPLE

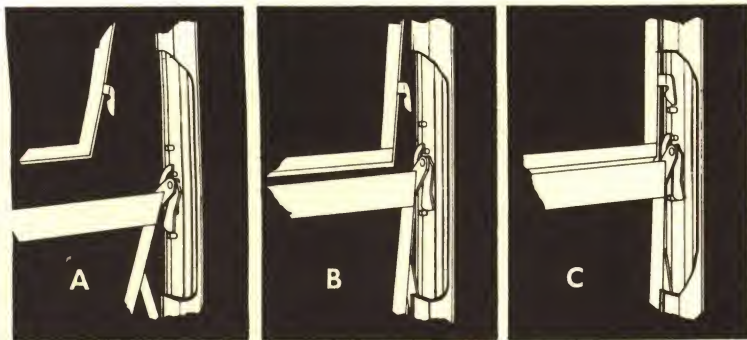
aluminum windows

operating principle

5a
Lu

patented Auto-Lok operation

Ludman Auto-Lok Windows are the tightest closing windows ever made. They close ten times tighter than generally accepted standards. Here's why: (A) While vents are swinging in toward the frame, the vertical operating bars at each side of window move up. (B) Note how lugs on operating bars and hooks on vents commence to move into position as the bars continue to move up, so wedging action may be applied to pull the vents in tightly against the frame. (C) The vents are pulled in snug, and pressure against vinyl weatherstripping assures a complete seal (like the door of your refrigerator). Automatic locking has commenced. (D) Final "locked" stage of Auto-Lok operation . . . hooks have moved in, adding extra locking action near the bottom of the vents, on both sides . . . locking all four corners of each vent. This action is entirely automatic and is accomplished during the normal, effortless turning of the operator handle.



WATCH THE "HOOK" AND THE "LUG" PULL IT SNUG!

air infiltration tests

Tight closing is a very important consideration in a window's performance. Unbiased tests at Pittsburgh Testing Laboratory reveal that air infiltration through a standard Auto-Lok window is unbelievably low, only 0.095 cu. ft. per minute.

In terms of effective closure, that amazingly low rate of air infiltration makes Auto-Lok many times tighter than the generally established standards for any other type of window that opens. And, because of patented Auto-Lok design, this tight closure remains effective for the life of the building. ADD this unrivaled tight closure, plus the fact that Auto-Lok is the first and only window to combine the BEST features of ALL window types and you have, indeed, a new STANDARD FOR WINDOW PERFORMANCE.



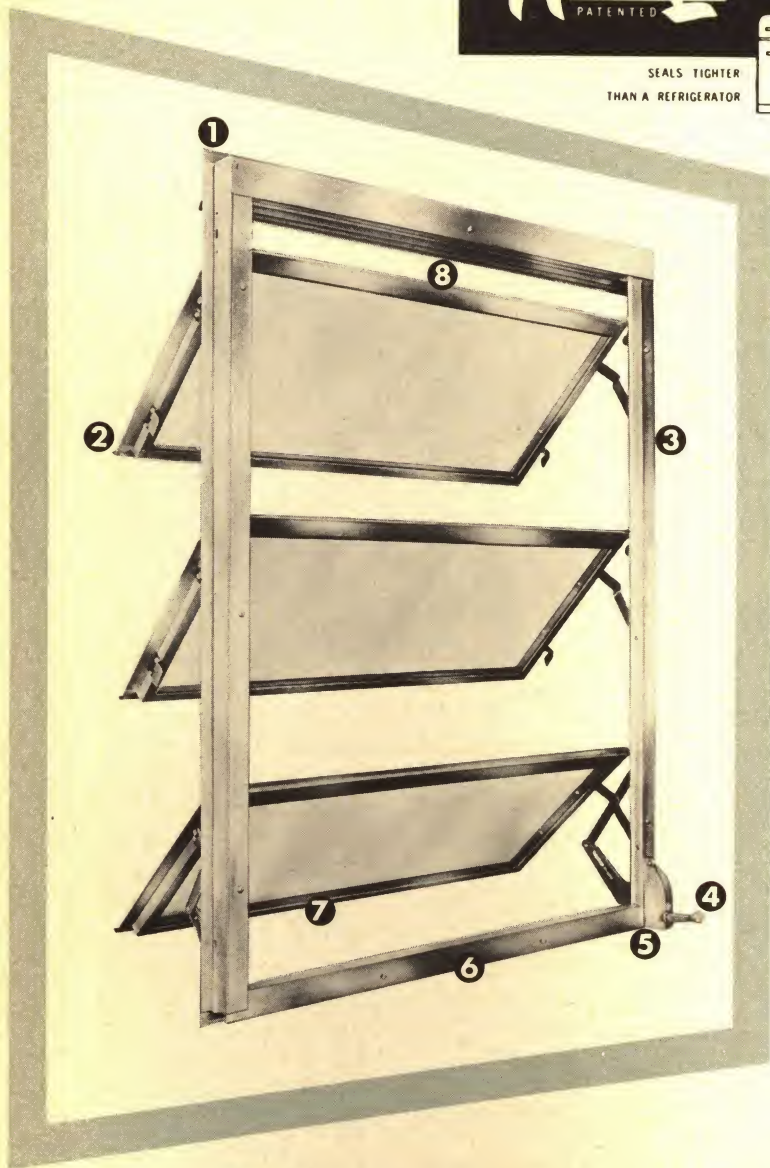
Ludman Corporation



SEALS TIGHTER
THAN A REFRIGERATOR

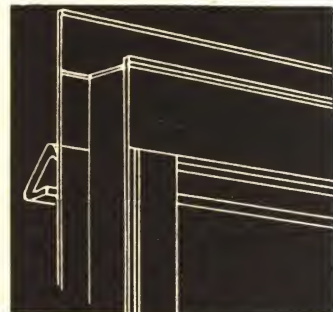


CONSTRUCTION



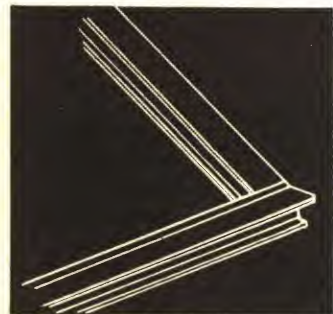
1 extra heavy extruded aluminum construction

The design of Auto-Lok's frame and vent sections provides maximum strength. Fine narrow sight lines are maintained without sacrifice of sturdy construction.



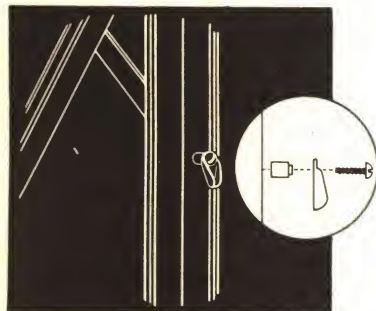
2 drip cap

The drip cap on each vent is designed right into the strong aluminum extrusion. They add a distinctive richness to the architectural styling of Auto-Lok. Drip caps are fully weatherstripped and shed water away from the window.



3 screen clips

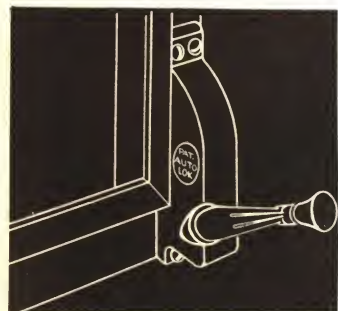
Interchangeable inside screens and storm sash can be placed or removed easily . . . just flip the clips, no tools required. Screen is not exposed to weather . . . remains clean and bright.



4 "angle type" power-light operator

Here is the most beautiful yet practical operator ever designed, because gracefulness has not been sacrificed for extra strength. Combines the non-corrosive features of high strength cast aluminum in the arm proper, and integral strength of coined and sintered steel in the gear teeth. Feather touch operation is the result of the smooth working contact of "oil impregnated" gear with "rolled thread" worm. Maximum gear teeth engagement is assured by both the breadth of gear (nearly $\frac{5}{16}$ of an inch) and the roll shaped worm (almost $3\frac{1}{2}$ teeth in direct drive contact). With a few effortless turns of the handle even the largest ventilators open easily and quickly without effort.

Does not interfere with venetian blinds. Operator normally furnished for right hand operation. When left hand operator is desired, please specify.



ENGINEERED AND MANUFACTURED BY LUDMAN

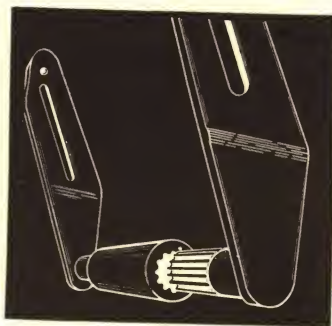
5 "over the sill" power-light operator

Incorporates all the features of Ludman's "Angle Type" power-light operator. Designed to meet various diversified architectural requirements. Shank length can be varied to meet any sill condition.



6 torque-bar assembly

Ludman's torque bar assembly is radially splined, which eliminates welding, pinning or other devices that may be subject to breakage.



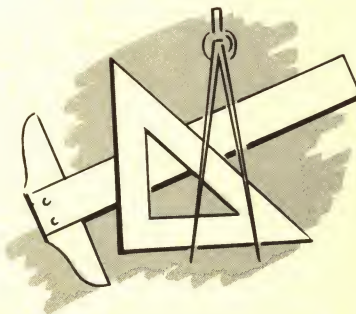
7 delayed action opening

Bottom vent opens for partial ventilation while upper vents remain securely locked. Only Auto-Lok gives you "delayed action" opening and controlled ventilation from a slight crack of the bottom vent to a complete opening of all vents. Ideal for night ventilation, and for ventilation during extremely cold weather.



8 cleaning angle

Auto-Lok windows are the easiest to clean. There is nothing to lift out . . . no gadgets to disengage. Simply open wide and clean all glass conveniently and comfortably entirely from the inside . . . top vent tool



LUDMAN LEADS THE WORLD IN WINDOW ENGINEERING

Ludman window products in a few short years have forged into national dominance, as a result of unrivaled research, design and craftsmanship. A huge new plant emphasizes Ludman's proven window leadership and provides facilities for continued product creation and perfection, and production . . . without equal.

Ludman employs a large staff of experienced engineers second to none in the industry. Research always has been — and is — the foundation of all Ludman operations. We are constantly researching new designs and better ways to produce both windows and жалюзи.

Research engineers test every Ludman product before releasing it for production and they are further tested by recognized independent testing laboratories for advertising and endorsement purposes.

During 1954 alone, our service engineers designed window installations for hundreds of large schools and hospitals and many other major building installations throughout the country.

Leading architects and designers make constant use of the experience and research facilities of Ludman's engineering staff. This department is always at your service to supplement your own facilities for any type installation, large or small.





CONTROL BAR



the only window designed to meet all school window requirements . . . for hospitals, commercial, industrial and public buildings, too!

The design of the Auto-Lok Control Bar Window retains all of the advantages of the remarkable performance of the Standard Auto-Lok Window and at the same time withstands the abuse windows are generally subjected to when used in schools. The advantages of Auto-Lok Windows for schools are better, and more easily controlled ventilation . . . fresh air all the time . . . even when it's raining . . . positive tight closure to eliminate the "cold zone" around windows . . . plus a sturdy control bar for the simplest push-out operation.

(A) **CONTROL BAR**—The simplest operating device ever designed! Will withstand the severest usage. Quick, safe, effortless opening and closing can be accomplished by the youngest child. Handsome, smooth aluminum alloy bar takes the place of the slower turning operator . . . reduces window operation to absolute minimum. No maintenance, no adjustments ever!

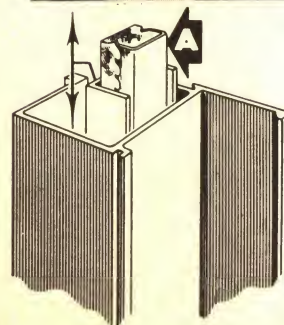
(B) **SAFETY-LOK**—An improved locking feature that securely locks the bottom vent. Center position makes it handier, more accessible. Extra protection against intruders.



friction pad for control bar window

The friction pad used in Ludman's Control Bar Window consists of the highest quality felt available and provides the required amount of friction to assure perfect operation.

Arrow in illustration indicates how hardware channel moves up and down in the jamb. Pressure against friction pad holds vents open to any position desired. Note how felt is held in special aluminum retainer with crimped edges. See A.



ENGINEERED AND MANUFACTURED BY LUDMAN

aluminum windows**control bar operation****WINDOW****operational ease!**

Now, windows so simple and easy to close, the youngest child can manage them. Just push-out or pull in. Opened fully or only a fraction, vents stay put in any position.

instantaneous weather control!

All vents can be opened fully or closed as tight as a refrigerator door, in less than one second. Nothing to crank . . . the Control Bar opens and closes all vents.

absolutely injury-proof!

Completely concealed and enclosed Ludman Auto-Lok operating mechanism provides "weightless balance" for every vent. Nothing to jam fingers or catch clothing. No straining.

vandal protection!

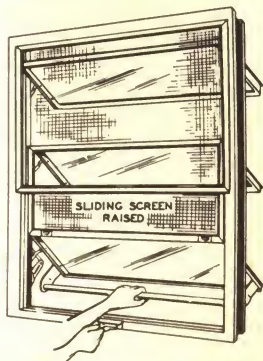
Patented, automatic-locking Ludman Auto-Lok hardware locks each vent separately and independently. Center Latch locks bottom vent after all other vents lock automatically. Auto-Lok Windows cannot be forced open from the outside!

maintenance economy!

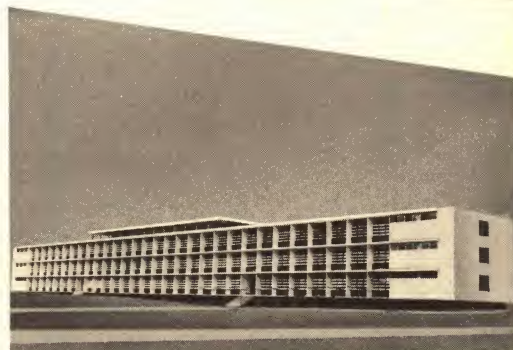
Now, windows that are positively "student-proof!" No parts to work loose . . . no operator handles to become bent or broken . . . no gears to become stripped. No adjustments or replacement of any part of the Ludman Auto-Lok operating mechanism necessary ever!

lifetime trouble-free operation!

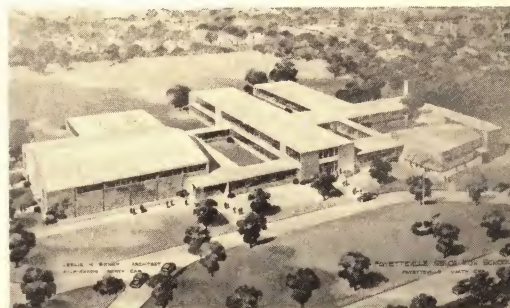
Auto-Lok Windows are the finest windows ever made for schools. They are the result of years of special research and study of school window problems, and are designed to last a lifetime under the most severe school usage.



screens—The screen for the Control Bar Window consists of an upper fixed screen and a lower sliding screen. When vents are closed sliding screen remains up. When vents are open screen is lowered. Easily installed completely from the inside.



Girl's High School
Partilla, Panama City, R. of P.
Ernesto de la Guardia, III, Architect



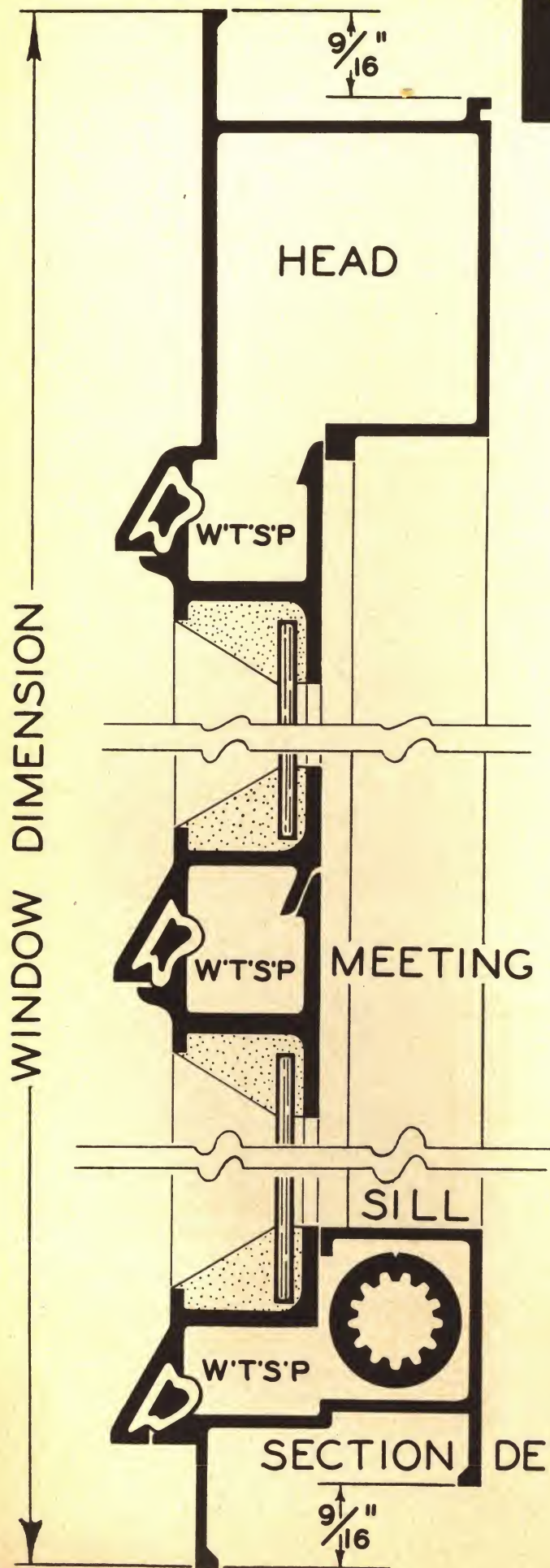
Fayetteville Senior High School
Fayetteville, North Carolina
Leslie N. Boney, Architect



New Hanover High School
Gymnasium and Class Room Addition
Wilmington, North Carolina
Leslie N. Boney, Architect

Leading architects throughout the country have specified Auto-Lok Windows for many hundreds of school installations.

vertical frame section



LUDMAN

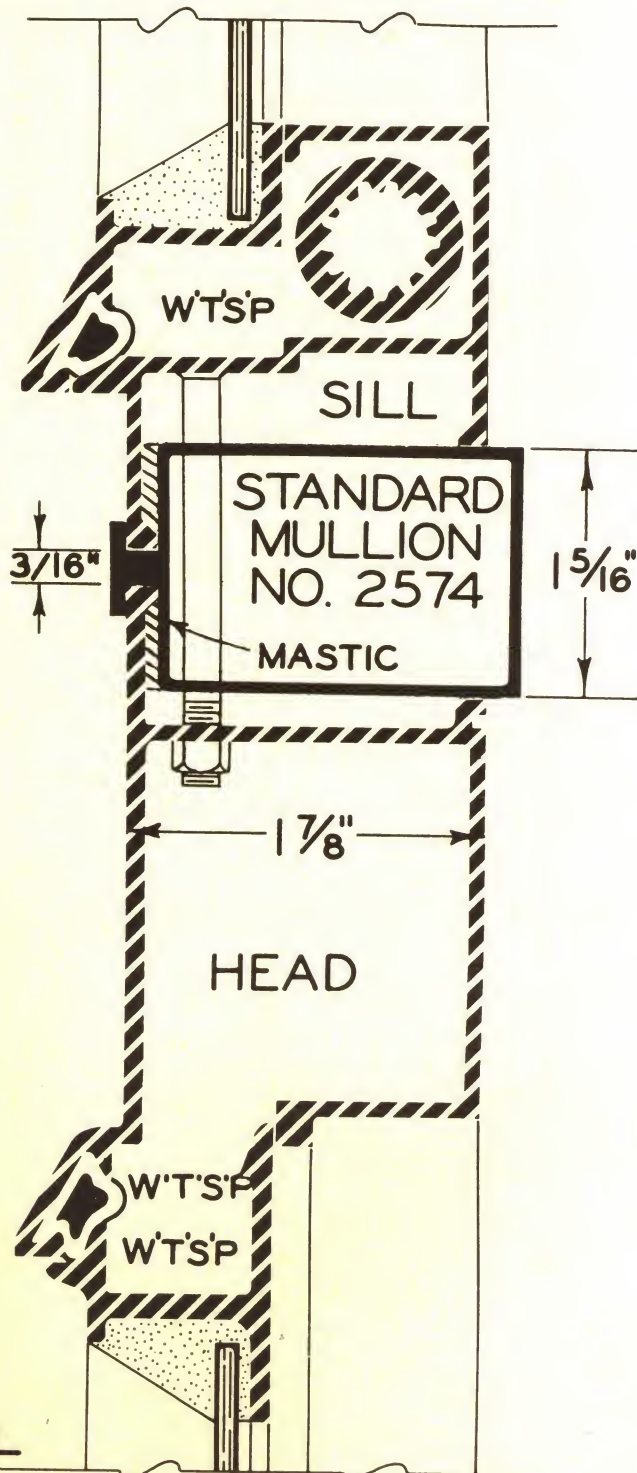
Auto-lok
AUTOMATIC LOCKING
PATENTED

SEALS TIGHTER

These full size details illustrate the well-balanced horizontal and vertical extruded aluminum sections used in Auto-Lok Aluminum Windows.

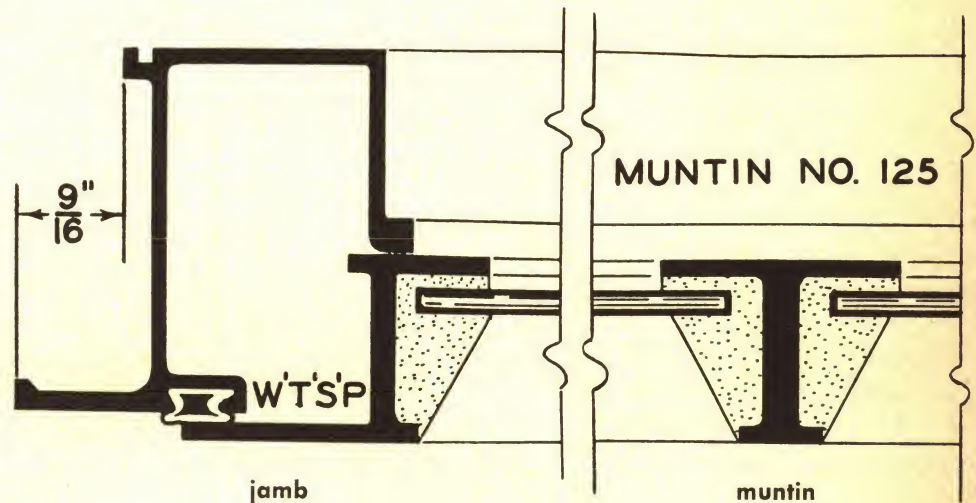
Strength, combined with architectural style and superb craftsmanship, are apparent in all the details and methods illustrated.

horizontal mullion



jamb and muntin

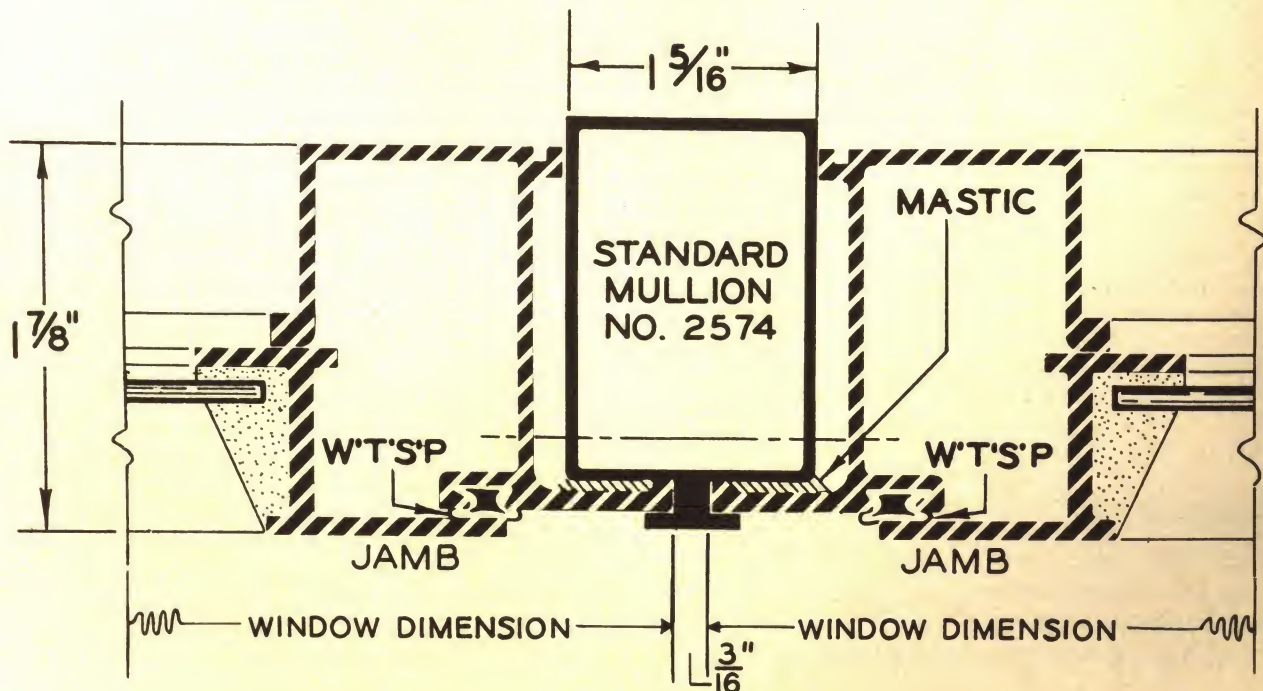
Characteristic of the meticulous Ludman engineering design is the extruded aluminum jamb sections. Note recess that accommodates weatherstripping. MUNTINS are furnished at slight extra cost for any standard Auto-Lok window. Use of muntin makes possible various architectural effects; for example, using smaller panes of glass will give a Colonial effect. Muntin No. 125 is a heavy muntin used in operating and fixed vents and picture windows, with or without glazing bead.



standard mullion for multiple windows

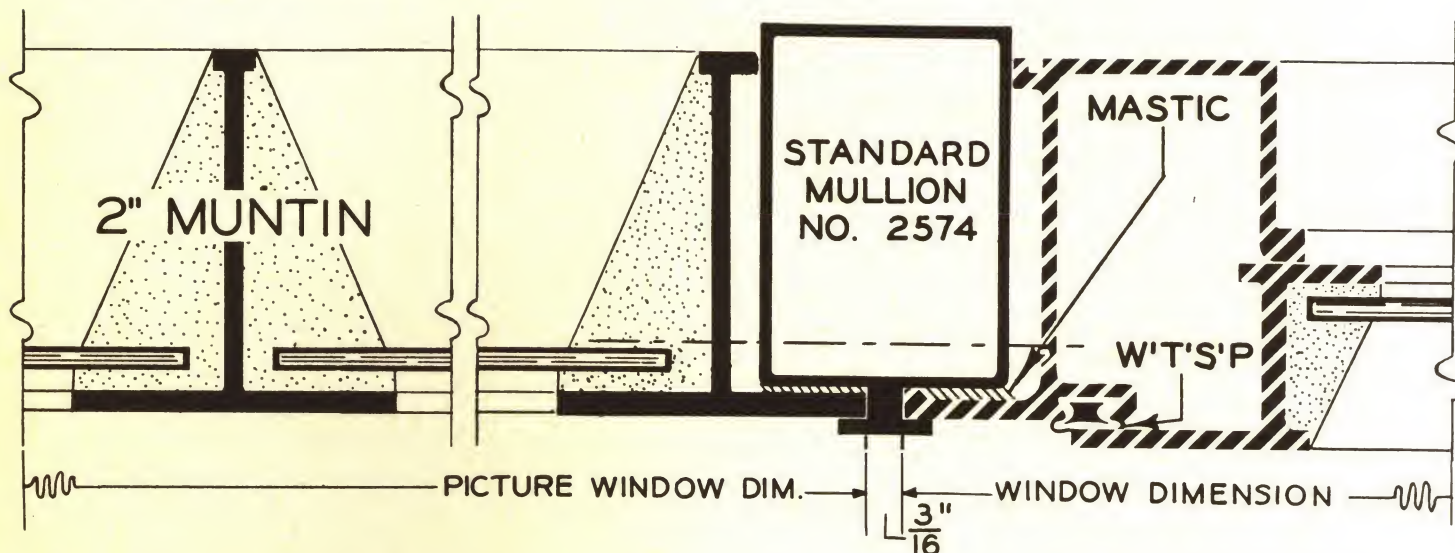
Standard Mullion No. 2574 for general use in all combinations of two or more Auto-Lok windows or Auto-Lok and picture window combinations. To determine overall width when two or more windows are used with this mullion, ADD $\frac{3}{8}$ " for each mullion to sum of window

widths. Mullion bolt holes on all standard jambs and mullions are factory matched for easy installation. Note: These mullions may also be used in combinations with Ludman Auto-Lok Windows and Ludman Jalousies.





picture window frame and mullion full size sections (continued)

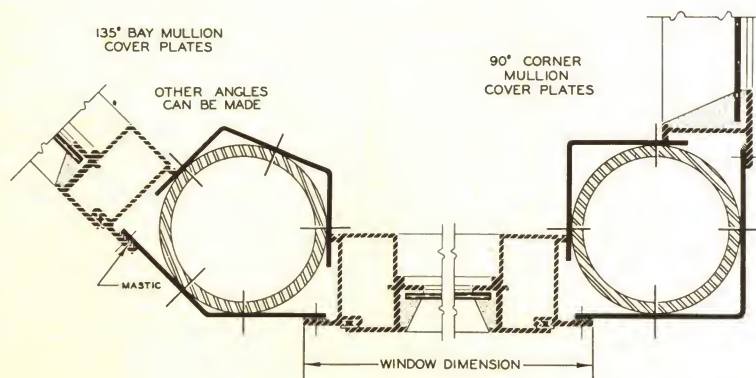


Note full 2" heavy picture window frame section No. 2661 (inside glazing shown) for use with all Auto-Lok window types. May be glazed with glazing compound (as shown) or glazing bead (see page 17); designed to take either $\frac{1}{4}$ " plate glass or 1" Thermopane. This section also available for outside glazing.

cover plates angles for bay and corner installation scale 3" = 1'-0"

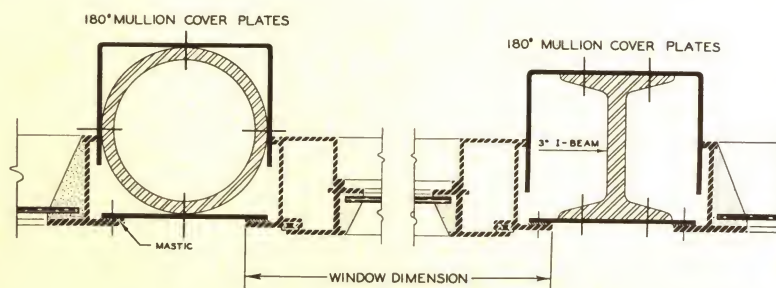
Shown here are typical standard details for bay and corner installation using Auto-Lok inside and outside Cover Plates for pipe columns. Cover Plates (connecting plates for joining two windows) can be used for various multiple, corner and bay window combinations.

When ordering inside and outside Cover Plate it is necessary to specify the outside diameter of the pipe and the degree of the angle. Unless angle is specified, 90 degree Cover Plates will be furnished. Cover plates will be furnished as a set (inside and out) unless otherwise specified.



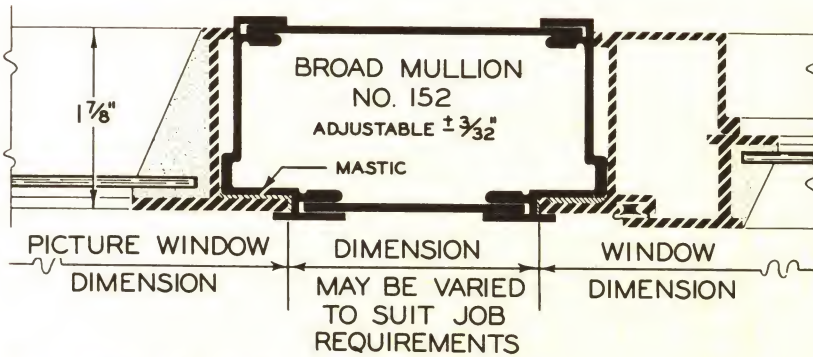
180 degree cover plate

Auto-Lok Cover Plates may be adapted to various 180 degree mullion conditions. Shown here are typical adaptations. When specifying please indicate exact outside dimensions of mullion used.



mullion details

special mullions 1/2 size

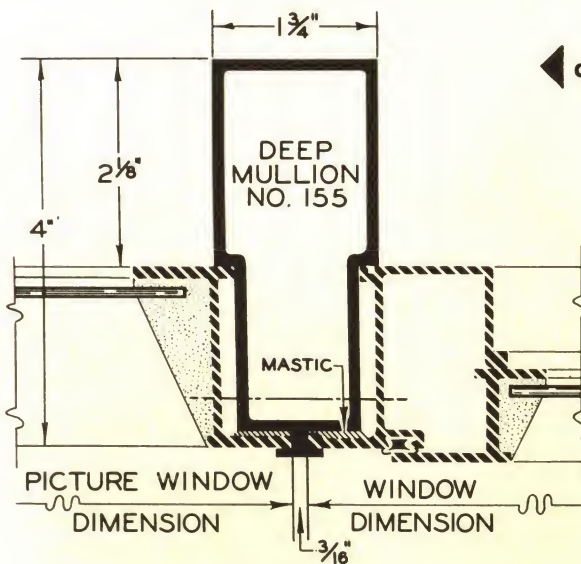
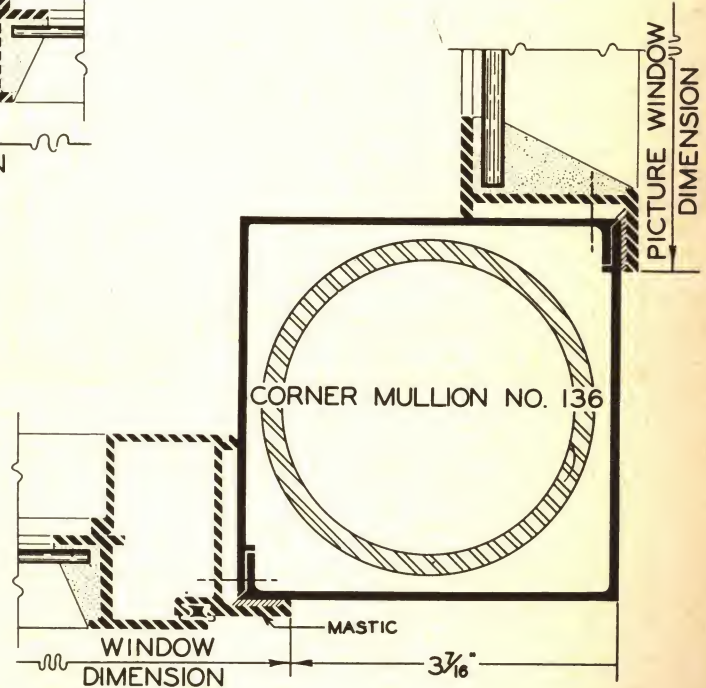


adjustable broad mullion

Adjustable Broad Mullion No. 152 is multi-purposed. It permits exceptional flexibility in opening sizes and will provide for such architectural treatments as partitions, long window runs, etc. This mullion is made up on order to any width and is then adjustable on the job, plus or minus $\frac{3}{32}$ " from specified dimension.

4" square mullion

Corner windows are easily installed by using Auto-Lok Square Mullion No. 136. This standard item is made up of two like pieces which join to form a 4" square tube. Will enclose any size pipe (by others) up to $3\frac{1}{2}$ " O.D. Where cantilever construction is used this corner mullion serves without lolly column. The use of this 4" square mullion eliminates the possibility of interference with operating hardware.

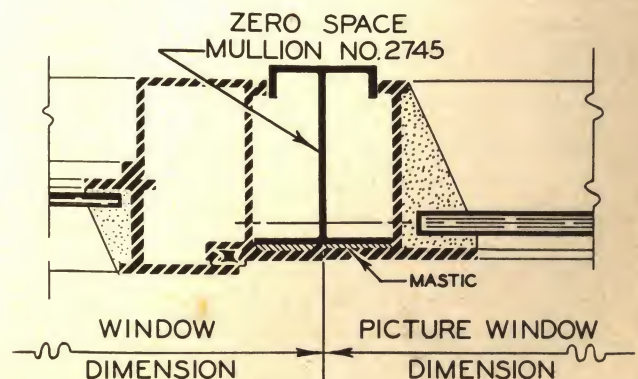


deep mullion

Auto-Lok Deep Mullion No. 155 may be used where depth of section is required for additional strength or for various architectural effects. May be used as vertical and horizontal mullion in conditions where a bank of windows rests on a bank of windows, such as a stair well. Opening sizes required are same as for standard mullions. For other applications consult factory.

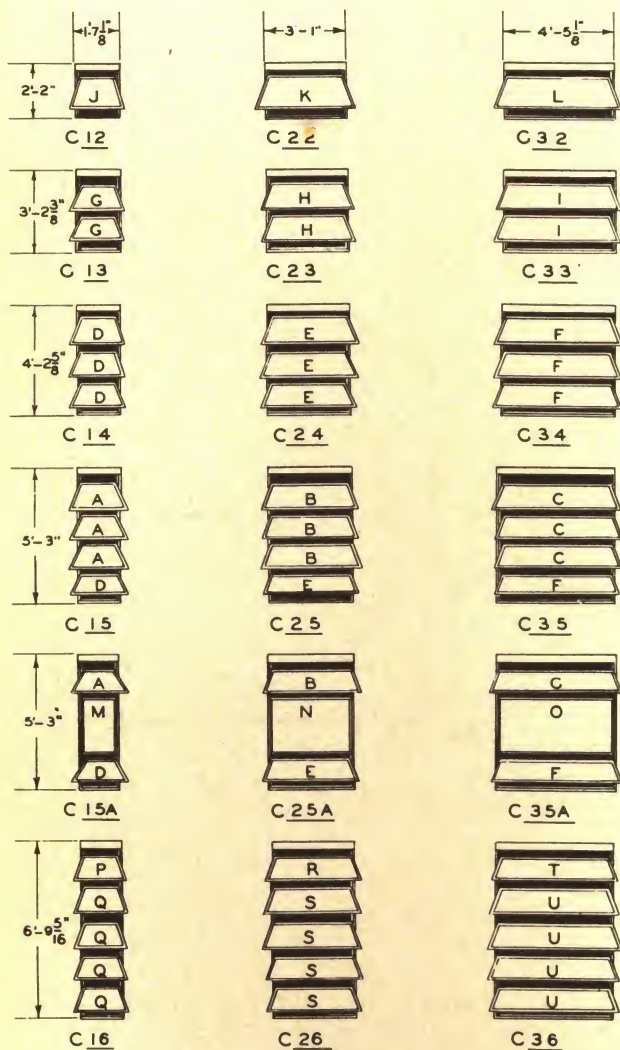
zero space mullion

Auto-Lok Zero-space Mullion No. 2745, allows the flanges of Auto-Lok windows, flanged Ludman Jalousies and/or picture windows to touch, wherever such flexibility is desired.

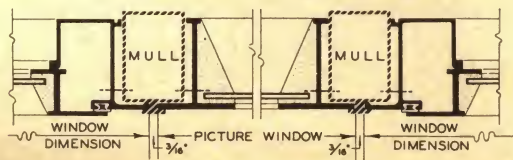
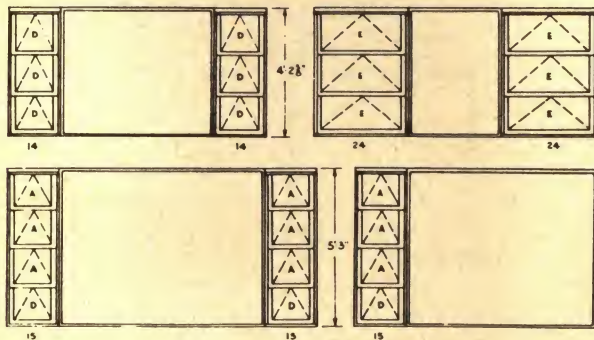


standard commodity

These sizes are as standardized by the Metal Window Institute for casement windows. Sizes are OVERALL from outside of flange to outside of flange.



All picture windows are made of extra heavy full 2" sections. Shown below are a few of the many combinations made possible by combining Auto-Lok units with picture windows in various arrangements.



glass sizes

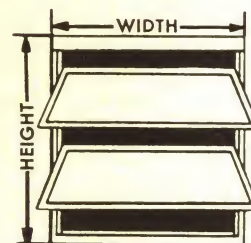
COMMODITY TYPES

- A — 14 3/4" x 12 7/8"
- B — 32 5/8" x 12 7/8"
- C — 48 3/4" x 12 7/8"
- D — 14 3/4" x 13 7/8"
- E — 32 5/8" x 13 7/8"
- F — 48 3/4" x 13 7/8"
- G — 14 3/4" x 15 1/2"
- H — 32 5/8" x 15 1/2"
- I — 48 3/4" x 15 1/2"
- J — 14 3/4" x 20 1/8"
- K — 32 5/8" x 20 1/8"
- L — 48 3/4" x 20 1/8"
- M — 14 3/4" x 27 5/16"
- N — 32 5/8" x 27 5/16"
- O — 48 3/4" x 27 5/16"
- P — 14 3/4" x 11 7/16"
- R — 32 5/8" x 11 7/16"
- T — 48 3/4" x 11 7/16"
- Q — 14 3/4" x 14 7/16"
- S — 32 5/8" x 14 7/16"
- U — 48 3/4" x 14 7/16"

combinations

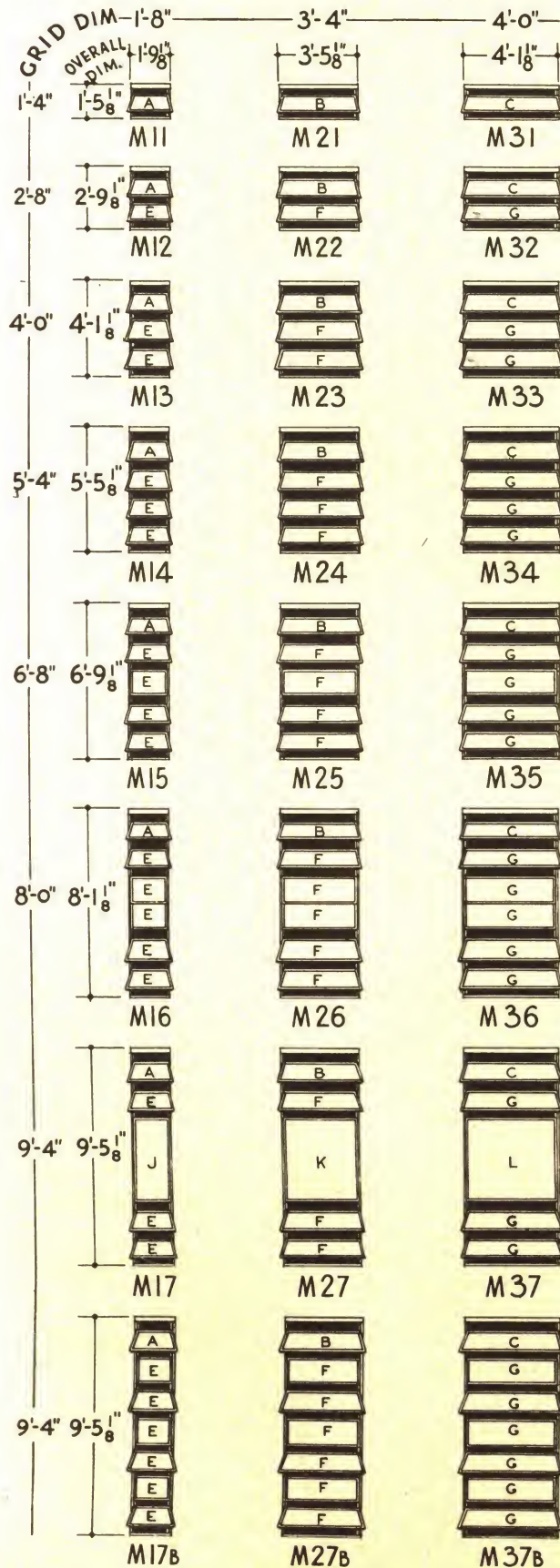
- CM = commodity width modular height
- MC = modular width commodity height

Combinations of any commodity width with a modular height or any modular width with a commodity height may be ordered as standard sizes. This offers a wide variety in the range of Auto-Lok standard sizes. When ordering please indicate "CM" or "MC" with the size desired.



See Page 14 for Special Types and Sizes

modular architectural *



glass sizes

MODULAR TYPES

- A - 16 3/4" x 11 1/4"
- B - 36 3/4" x 11 1/4"
- C - 44 3/4" x 11 1/4"
- E - 16 3/4" x 14 7/16"
- F - 36 3/4" x 14 7/16"
- G - 44 3/4" x 14 7/16"
- J - 16 3/4" x 46 7/16"
- K - 36 3/4" x 46 7/16"
- L - 44 3/4" x 46 7/16"

HOPPER VENT OF MODULAR SIZES

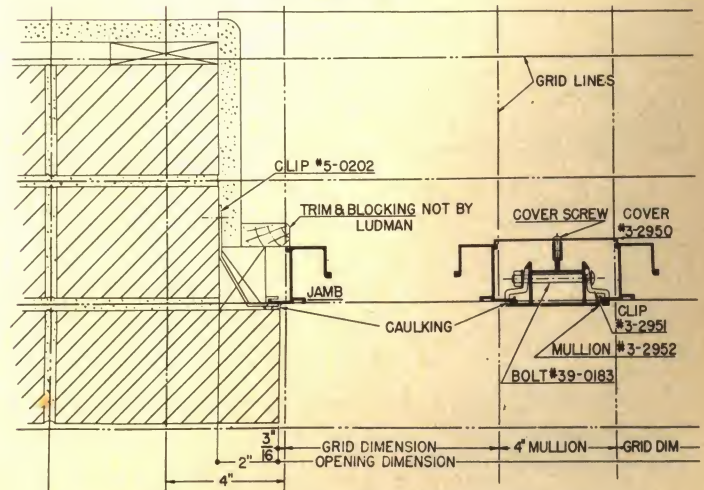
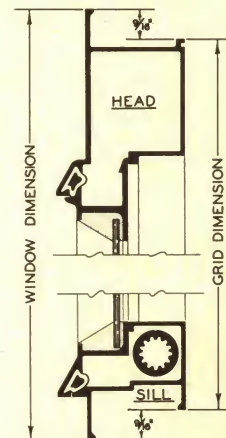
- M-1 Wide Hopper Vent
15 5/8" x 13 7/16"
- M-2 Wide Hopper Vent
35 5/8" x 13 7/16"
- M-3 Wide Hopper Vent
43 5/8" x 13 7/16"

to determine window sizes

Window dimensions shown are to outside flanges of window.

modular grid dimensions on Auto-Lok standards

Modular grid dimensions shown represent inside or buck dimensions. For buck opening size use modular grid dimension allowing for clearance. Modular grid dimensions equal window width minus 1 1/8"; window height minus 1 1/8".



Arrangement of vents may be changed on special order. Fixed vents on 5 light high windows can be operated if desired provided, the total glass area to be operated does not exceed 30 square feet. Center fixed panels on 6 light high windows can be supplied as one large panel without meeting rail.

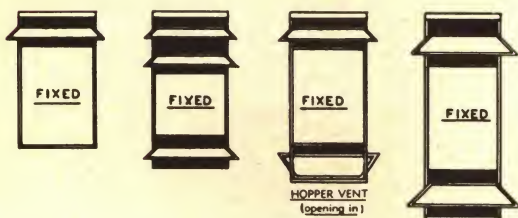
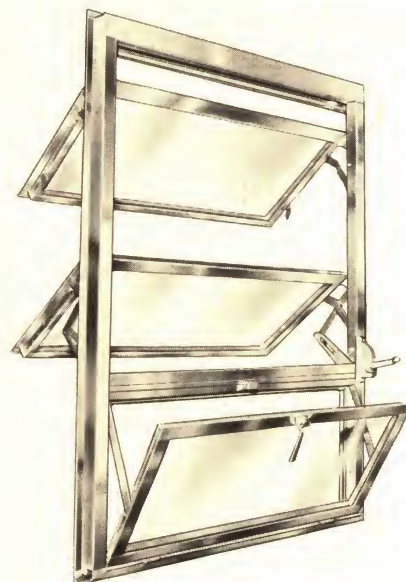
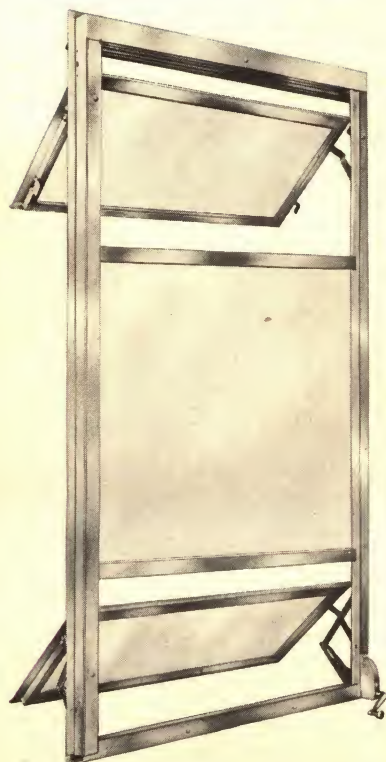
*All Ludman Modular Window Sizes are recommended by the AIA (American Institute of Architects) Modular Coordination Office.



SEALS TIGHTER
THAN A REFRIGERATOR

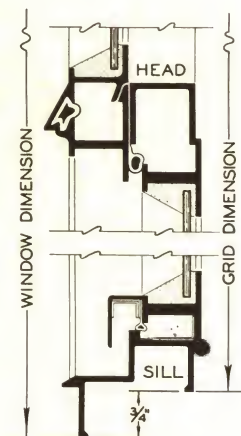


SPECIAL TYPES AND SIZES



Hopper Vents

Hopper vents (open-in) can be supplied in place of the bottom vent on any modular height window. The hopper vent is fully weatherstripped and operates independently of other vents by means of an attractive cam latch handle. Removable outside screens can be replaced by storm sash. All work is done from the inside.



Extended Drive

Windows having one large fixed section below the operating vent can be operated with an extended drive operator at normal sill level.

Special Sizes

widths

Windows may be ordered to any specified width up to 5'0" on engineering basis.

heights

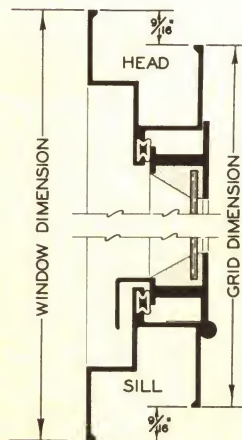
Available on engineering basis only on orders of 100 units or more for each special height.

venting

Any operating vent on any window except the bottom vent on commodity height windows may be fixed stationary at the factory at no extra cost.

Vents shown fixed may be ordered operating on special order.

NOTE: Factory reserves the right to limit the degree of opening of all non-standard windows.



Transom Type Units

Transom type units are single vent, bottom hinged, open-in units. Available in all commodity and modular widths. Heights are standard one vent heights. Supplied with cam latch or spring catch for pole operation when out of reach.

aluminum windows**typical installations**

Infirmary for Jewish Aged
Buffalo, New York
Milton Milstein, Architect

**HOSPITALS, SCHOOLS, HOTELS, RESIDENCES,
COMMERCIAL and INDUSTRIAL BUILDINGS**



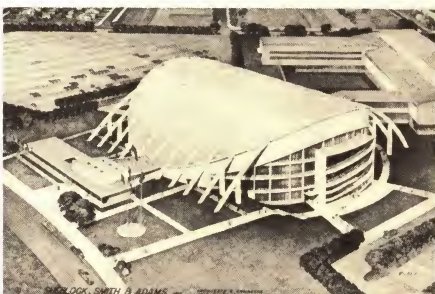
Auto-Lok Residential Installation
Coral Gables, Florida



Auto-Lok Residential Installation
Billings, Montana



Western Hills Hotel Fort Worth, Texas
Charles Dillbeck, Architect
Carlos Schoeppl, Consultant



The Alabama Agricultural Center Coliseum
Montgomery, Alabama
Sherlock, Smith & Adams, Architects



Burlington Protestant Hospital
Burlington, Iowa
Morgan-Gelatt & Associates, Architects



Brown Shoe Company
St. Louis, Missouri
Russell, Mullgardt, Schwarz, Van Hoefen, Architects



Law School Building
University of Arkansas
Paul Young, Jr., Architect



Manatee Veterans Memorial Hospital
Bradenton, Florida
Bail, Horton & Associates, Architects & Engineers



India Supply Mission
Washington, D. C.
A. R. Clas, Architect



Lubbock Public Library
Lubbock, Texas
James Atcheson & Atmar Atkinson, Architects



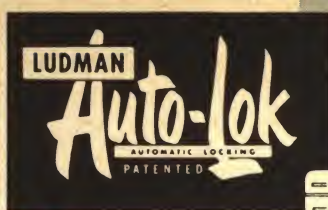
City Health Center
Toledo, Ohio
Peterson, Hoffman & Grow, Architects



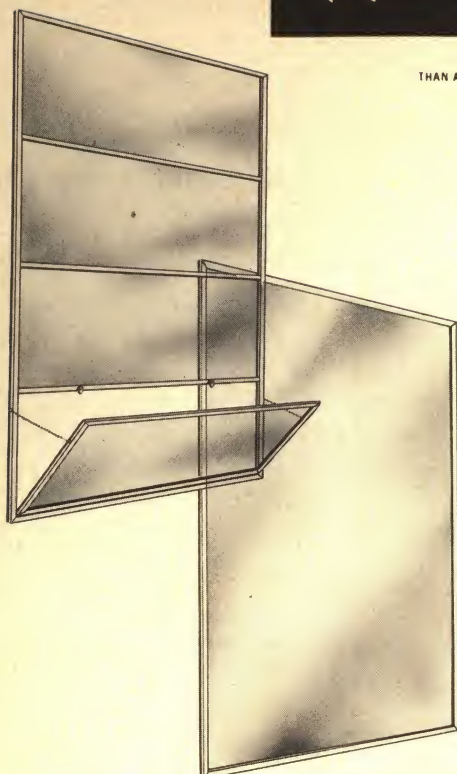
Wheaton Research Laboratory,
Millville, New Jersey
Norman N. Rice, Architect.

for all types of construction — in any climate

Ludman Corporation



SEALS TIGHTER
THAN A REFRIGERATOR



LUDMAN STORM SASH

Outstanding in design and construction, Ludman storm sash are manufactured of the highest quality materials to the same exact standards as Auto-Lok windows. They feature a tight fitting weather seal between the glass and frame and between the frame and window, for perfect sealing and maximum insulation. Exposed corner locks facilitate assembly or disassembly. Installed completely from the inside, Ludman storm sash are interchangeable with screens . . . do not interfere with operator. Available in solid sash and solid sash with narrow muntins to achieve horizontal architectural effects. Both styles also available with weather sealed ventilating hopper if desired.

LUDMAN SCREENS

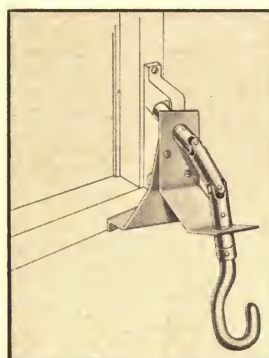
Sturdy, trim, light weight, lifetime aluminum screens are available in either box or inset types. Box type screens can be ordered with either rolled or extruded sections. Inset type screens are available with rolled sections only.

The same high quality which has made Ludman windows and jalousies the recognized leader in the industry is maintained in Ludman screens.

Order by window types and sizes as shown on pages 12 and 13

overhead operation

Auto-Lok windows are easily operated when installed in clerestory or high, inaccessible openings by means of Auto-Lok pole type adaptors for overhead operation. Mechanical operation for continuous windows is also available. For complete information contact our Engineering Department.

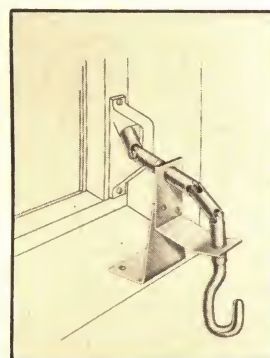


close coupled

No. P. O. Pole type adaptor for use only where sill depth is less than 4 inches.

poles

Order pole length to suit. Suitable length pole is approximately 3 feet less than sill height from floor.



extension type

Pole extension type adaptor for use where sill depth is greater than 4". Specify as follows:

Operator Adaptor No.	Depth of Sill
P-2	for 4" to 5½"
P-4	for 5½" to 7½"
P-6	for 7½" to 9½"
P-8	for 9½" to 11½"

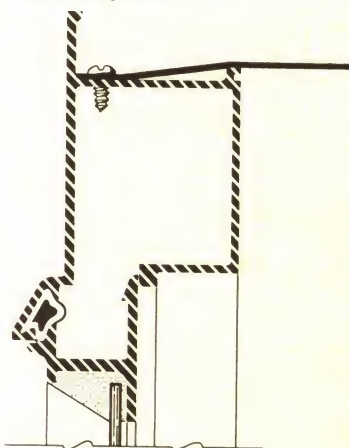
For sill depth greater than 11½" consult factory.

ENGINEERED BY LUDMAN

erection accessories ½ full size

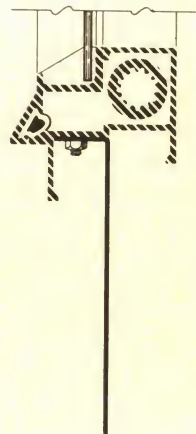
anchor clips

head and jamb



Ludman Universal Clip is shown here in typical attachment to head of window. Jamb attachment similar.

sill



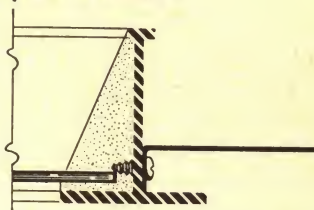
Ludman Universal Clip for mounting to wood or masonry. Clip is screwed to window and bent on job to suit requirements.

continuous metal fin

jamb



picture window

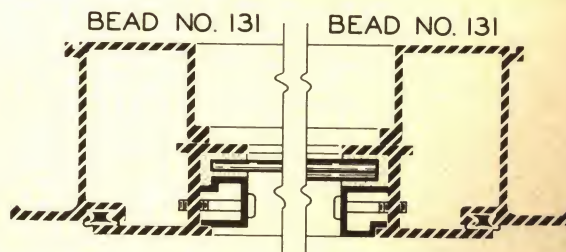


Ludman Universal Continuous Metal Fin can be turned either way to suit job requirements. Jamb installation shown above; picture window section below. Head Fin is similarly installed.

glazing details ½ full size

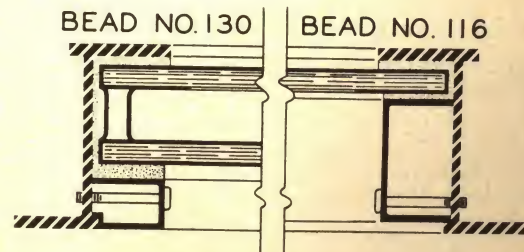
universal glazing beads

Auto-Lok Bead No. 131 is universal for glazing vents with either ¼" or ⅝" glass. Note how bead reverses to accommodate either size glass. Furnished to be drilled and tapped on the job, unless otherwise specified.



picture window glazing bead

Glazing Bead No. 116 for use with ¼" or ⅝" glass in 2" Picture Window Frame. Glazing Bead No. 130 for use with 1" Thermopane or Twindow in 2" Picture Window Frame.



double glazing

All Auto-Lok sections will accept either Thermopane or Twindow double glazing. Vents will accept only ½" Thermopane or Twindow.

snap in glazing bead

Available on request.

Glazing Clips furnished by others.



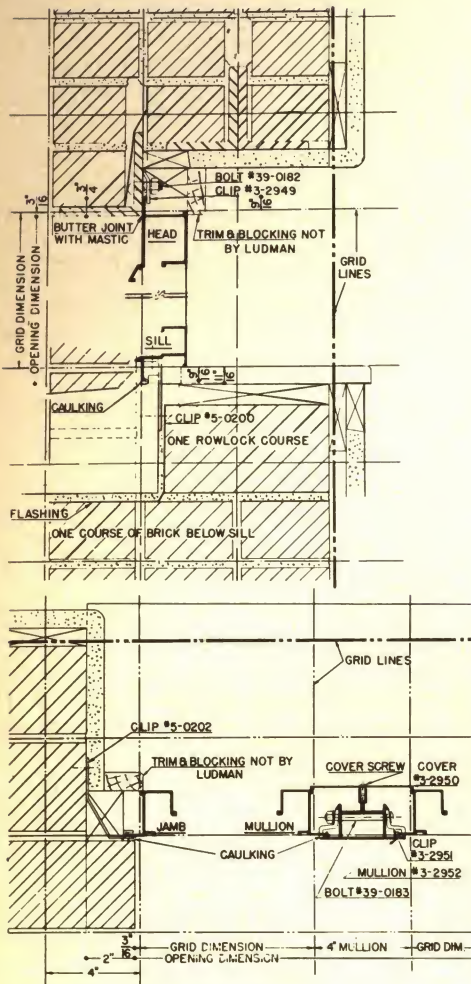
SNAP IN
GLAZING BEAD

installation details

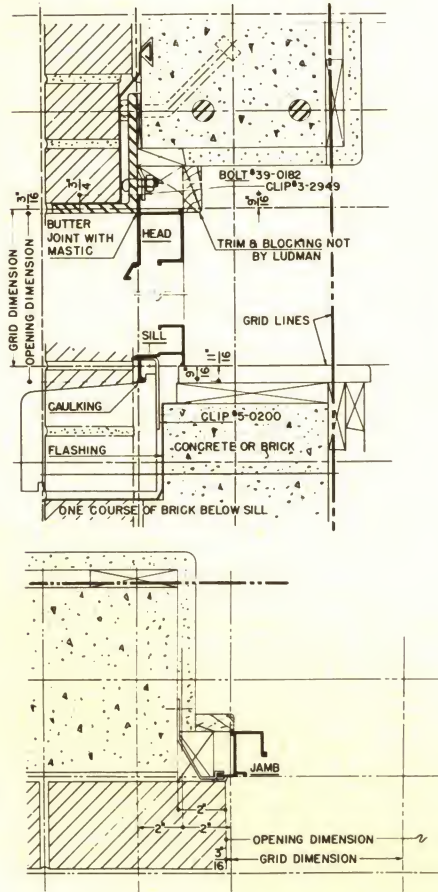
1½" - 1'-0"

MODULAR

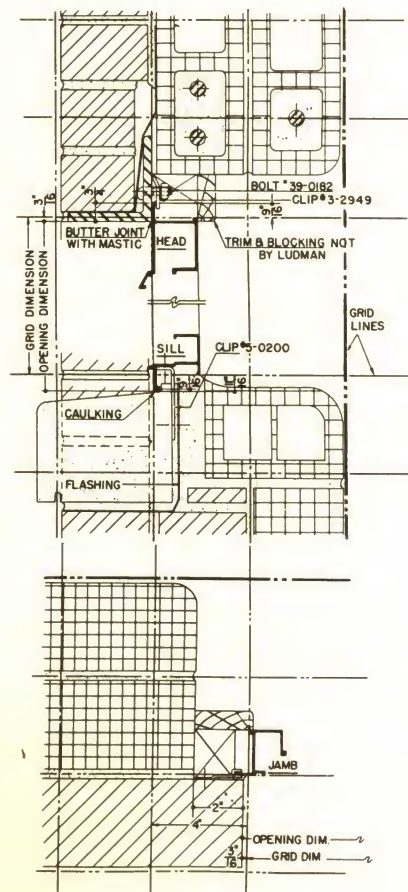
solid brick



brick on concrete

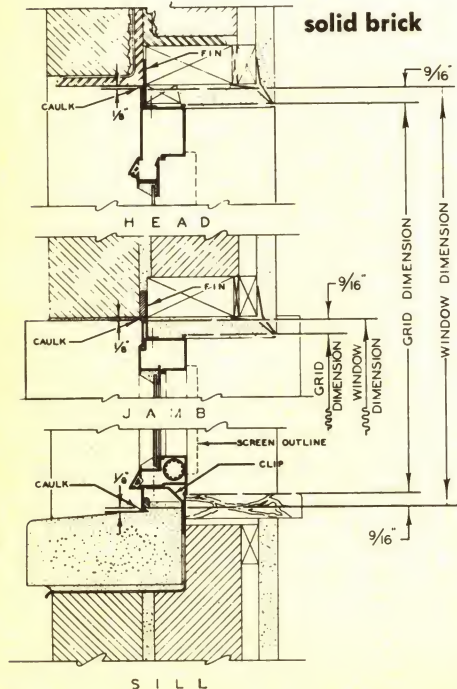


brick on tile

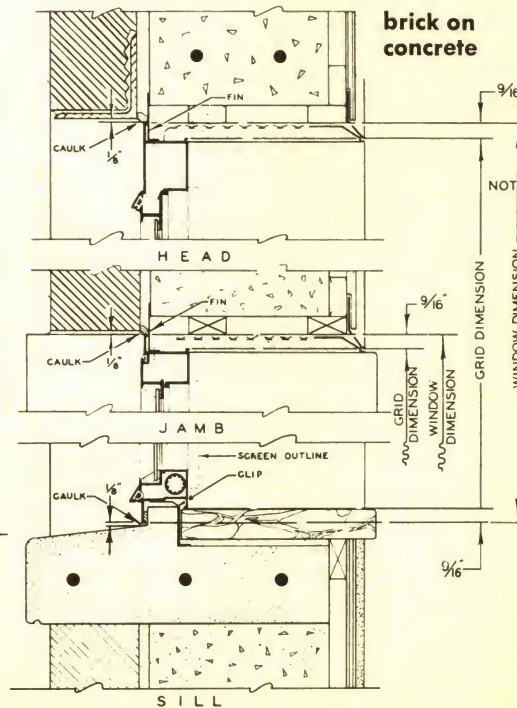


COMMODITY

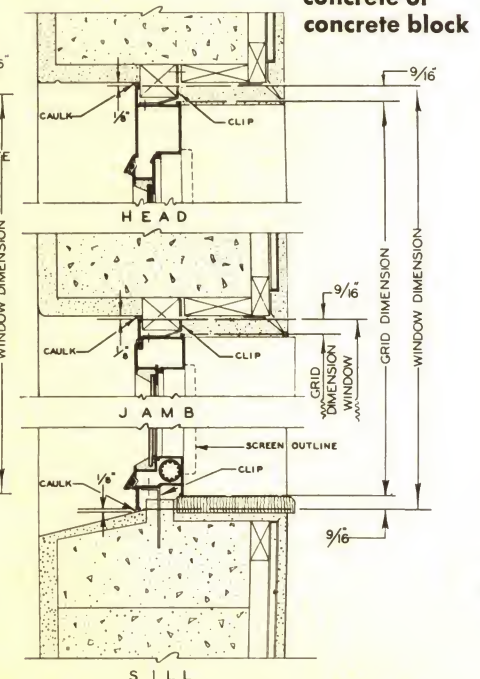
solid brick



brick on concrete



concrete or concrete block



note: Auto-Lok Aluminum Windows come complete with hardware for sill operation. (Caulking, mastic, flashing, structural steel, trim, glass, putty and glazing to be furnished by others.) Anchor clips are furnished for head, jambs and sill with all sash when requested. Continuous metal fins at head and jambs are furnished when specified as extras. Auto-Lok Windows are easily adapted to any type of construction. Consult our Engineering Department for assistance and details of special conditions.

aluminum windows

installation details, specifications

specifications

GENERAL — Windows are to be AUTO-LOK weatherstripped Aluminum Windows as manufactured by Ludman Corporation, North Miami, Florida, in sizes as shown on drawings. —

MATERIAL — All window members shall be 63S-T5 or suitable aluminum alloy. The aluminum alloy shall contain no more than 0.4% copper. All frame members shall have a minimum depth of 1 $\frac{3}{8}$ ". Head and sill sections of the vents shall have a minimum depth of 1 $\frac{1}{4}$ ". Operating hardware shall be a suitable hard aluminum alloy. Roto-type "Power-Light" operator in either angle or over the sill types shall be standard as manufactured by Ludman Corporation and shall provide smooth and easy operation, furnish maximum power and give lifetime satisfaction.

CONSTRUCTION — The window shall be assembled in a secure and workmanlike manner to assure neat weathertight construction. When window is in closed position there shall be two weathering contacts around the entire perimeter of all vents, one of which shall be weatherstripped. Locking devices shall be fastened to the vents to seal them against the weatherstripping when window is closed. The sill of each vent shall have a weatherstripped drip cap to cover vent underneath.

OPERATION, STANDARD SIZE WINDOWS — All outward opening vents of standard size windows shall open to more than 80 degrees. Top vent shall drop-down a minimum of 6" to permit easy cleaning from inside without disengagement of hinges. Bottom vent shall open for partial ventilation while upper vents remain closed. All vents except night vent shall be locked at all four corners of each vent automatically without any undue stress at pivot points. A radially splined torque bar assembly, completely concealed in the sill, shall be employed to bring in the bottom night vent. All opening sash shall have continuous compressed weatherstrip contact around entire perimeter of each vent when locked. Operation of special window shall be in accordance with drawings supplied by manufacturer. All modular sizes shall be approved by the AIA, (American Institute of Architects) Modular Coordination Office.

HARDWARE — Interior hardware shall be AUTO-LOK as manufactured by Ludman Corporation. All hardware except operator and latch shall be attached at point of manufacture. Roto operator shall be a standard "Power-Light" AUTO-LOK operator. Control bar windows with AUTO-LOK hardware shall be operated by an aluminum alloy bar as manufactured by Ludman Corporation in place of roto type operator.

WEATHERSTRIPPING — Windows shall be completely weatherstripped at all outside contacts with Koroseal or elastomeric vinyl or equal. Rubber or rubber composition shall not be used. Weatherstripping shall be inserted in grooves provided therefor and shall be so bonded so it will not leave these grooves under severe usage. When windows are closed, weatherstripping shall be compressed by a load equal to a ten pound minimum; when windows are open, weatherstripping shall return to normal shape.

AIR INFILTRATION — Upon request, the manufacturer shall supply a copy of air infiltration test results by Pittsburgh Testing Laboratory or other recognized testing laboratory on a stock window showing air

NOTE: *Italicized portions in parentheses are architect's option.*

infiltration not exceeding 0.095 cubic feet per minute per lineal foot of crack perimeter when subjected to a static air pressure equal to that exerted by an outside air velocity of 25 miles per hour.

MULLIONS — Mullions for standard AUTO-LOK windows shall be extra heavy tubular sections with outside flange for complete weathering. For special window sizes, mullions shall be as shown on drawings, as furnished by Ludman Corporation.

FINISH — Windows shall have a standard metal finish. (*Special lacquers or anodizing where specified.*)

SCREENS — Where specified, screens shall be included in the sash contract. Screens shall be, as furnished by Ludman Corporation, aluminum frames and aluminum mesh unless otherwise specified. Screen cloth shall be 14 x 18 mesh per inch. Screens shall be retained by special swivel clips to permit easy and quick removal of screens without tools.

DRAWINGS AND INSTALLATION DETAILS — Upon request, the window manufacturer shall furnish standard details showing recommendations for the installation of the windows. (*If called for in these specifications, the manufacturer will furnish shop drawings or special installation details.*)

ERECTION — The erection contractor shall securely anchor windows in place to a straight, plumb and level condition, without distortion of the windows. Special attention shall be given to anchoring of sill and mullions. Erector shall use a suitable mastic at all window and mullion joints and shall place erection screws so they will not interfere with operating hardware, or distort frame. Erector shall make final adjustment for proper operation of ventilating units after glazing.

CAULKING — Window openings shall be properly caulked by others with a suitable compound to accomplish a thorough weathertight condition around the perimeter of the window frame and wall opening.

GLAZING — The glazing contractor shall use a glazing compound which shall have a composition particularly adapted for use with aluminum windows and shall not require painting to protect it from drying out or deterioration. Windows shall be glazed in a closed and locked position. Glass shall be bed puttied, clipped and face puttied in a workmanlike manner. Where bead glazing is specified, the glazing bead shall be as shown on drawings and as supplied by the window manufacturer. Glazing compound shall be used with bead glazing to secure against leakage.

STORM SASH — Storm sash will be as furnished by Ludman Corporation for AUTO-LOK Windows and shall be interchangeable with screens. Storm sash shall be vented or fixed as shown on drawings.

CLEANING AFTER ERECTION — All exposed portions of the window shall be cleaned by others after the painting and finishing of the building is completed.

INTERMEDIATE PROJECTED ALUMINUM WINDOWS



TRUE MODULAR ARCHITECTURAL SIZES OR MANUFACTURERS' STANDARD SIZES*

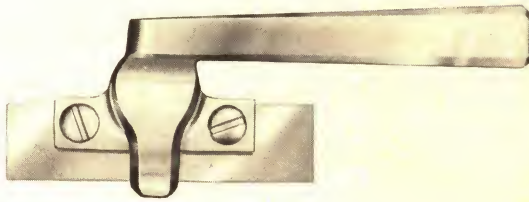
Ludman Intermediate Projected Aluminum Windows are engineered for performance perfection and are produced to the highest quality standards in the industry. From raw materials to the finished product, their quality is controlled at every step in production. Heavy gauge aluminum extrusions are produced from Ludman's own giant extrusion presses. Operating hardware is precision manufactured under the critical eyes of a large staff of inspectors. Ludman Intermediate Projected Windows, the result of years of research, offer a lifetime of trouble-free instantaneous weather control. The greatest care is exercised throughout to make every unit matchless in beauty and performance. They are suited for churches, public buildings, hospitals, schools . . . for any type commercial construction.

Muntins may be omitted.

only LUDMAN OFFERS ALL THESE FEATURES!

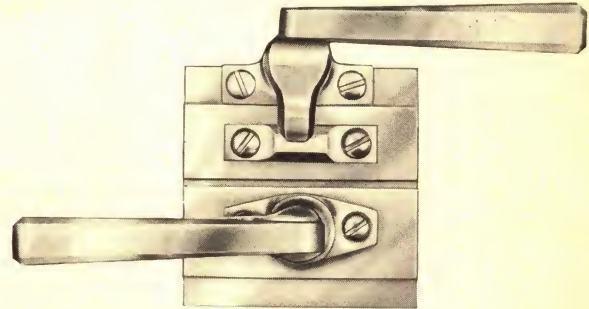
*True modular architectural sizes as recommended by the AIA (American Institute of Architects) Modular Coordination Office. Also available in manufacturers' standard sizes.

- White bronze corner braces for rigid corner vent construction.
- Non-metallic friction shoes and adjustable compression spring for smooth operation
- Vent arms securely attached to jambs through threaded inserts embedded in jamb sections for extra strength. Vents easily removed if necessary.
- Outside or inside mastic or bead glazing for use with standard or double glazing
- Mastic glazing retaining lips to eliminate feathering of glazing compound.
- Hardware screws are threaded into embedded grommets to prevent stripping.
- Projected-in and projected-out screens can be attached or removed from the inside. Cam handle with concealed strike for projected-in vent permits application of projected out screens without hardware interference.
- Stops in weatherstrip slides to limit vent openings to 50° and will prevent overtravel and locking of vents.
- Mullion bars that provide a caulking pocket for weathertight seal.
- All overlapping flanges form straight attractive sight lines. Hardware Bars have $\frac{3}{8}$ " web and added metal forming 45° angle to prevent vents from distorting when operated.
- Specially designed glazing bead in vents that do not require unsightly hold down screws.
- Vinyl weatherstripping for greater comfort . . . smaller fuel bills.
- $\frac{5}{8}$ " wall bearing to hold windows securely in openings.
- Adjustable mullions for expansion and contraction . . . for greater design flexibility.
- Vertical flutes designed in mullion bars and covers to match vertical lines of windows.
- Entire window can be easily cleaned from the inside.
- White bronze locking hardware polished to a beautiful satin finish.
- No draft ventilation. Vents scoop air in and up for even distribution. Vents may remain open even when it's raining . . . fresh air comes in but rain can't.
- Two point $\frac{1}{4}$ " contact around entire perimeter.
- Sections are milled to form hair line joints.
- Intersecting muntin joint securely locked by screw for added rigidity and proper glass clearance.



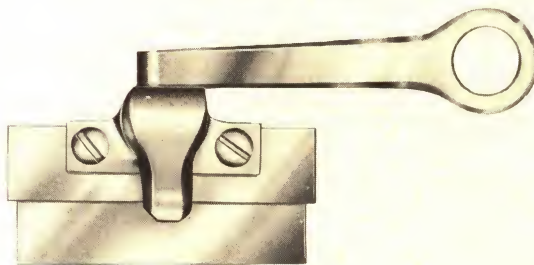
**PROJECTED-OUT VENT CAM
LOCK ASSEMBLY**

Part No. 59-0005
use with flat strike assembly
No. 59-0006



PROJECTED-OUT VENT CAM LOCK ASSEMBLY
Part No. 59-0005

use with flat strike assembly No. 59-0006



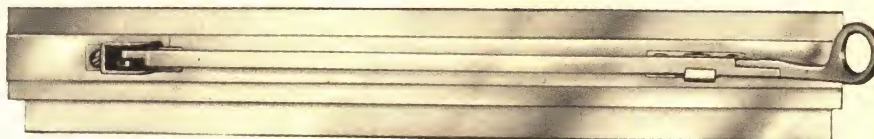
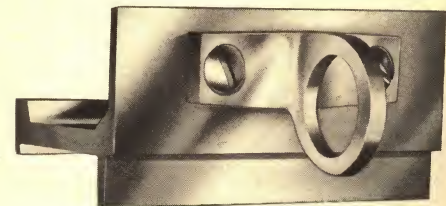
PROJECTED-IN VENT CONCEALED CAM LOCK ASSEMBLY
Part No. 59-0007

PROJECTED-IN VENT CONCEALED KEEPER ASSEMBLY
Part No. 59-0008

**PROJECTED-OUT VENT CAM
LOCK ASSEMBLY**

Pole Operated
Part No. 59-0004
use with flat strike assembly
No. 59-0006

POLE RING ASSEMBLY
Part No. 59-0001



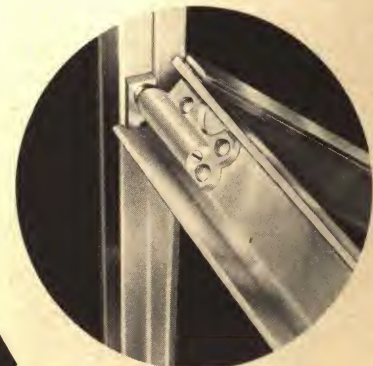
UNDER SCREEN OPERATOR ASSEMBLY

One light vent part No. 59-0000
Two light vent part No. 59-0003

**FRICTION SHOE HOUSING
ASSEMBLY**

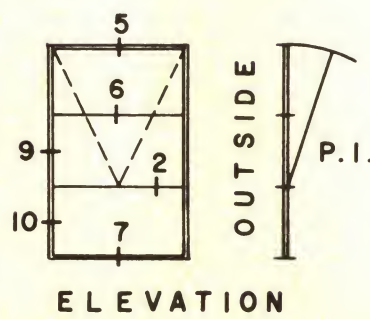
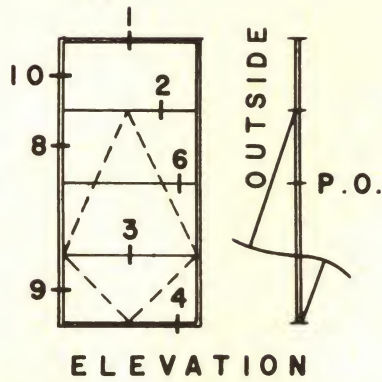
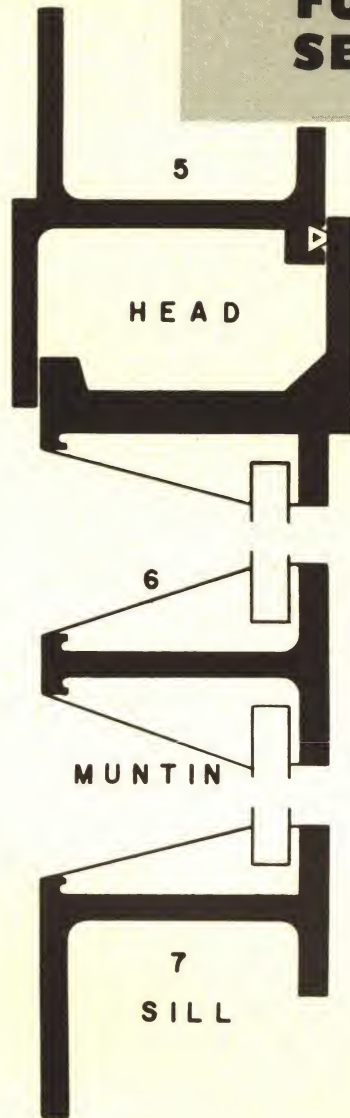
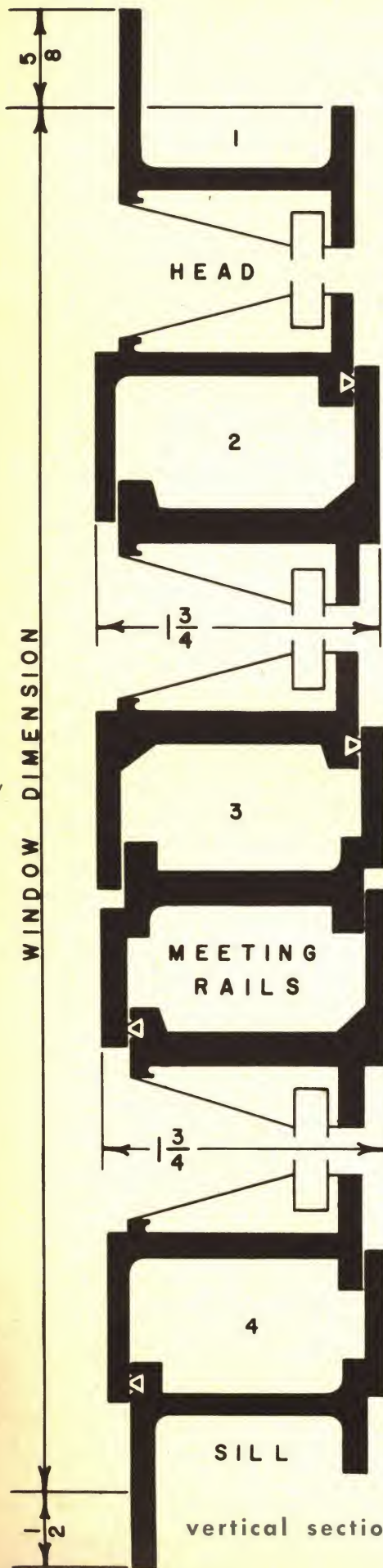
Right hand part No. 59-0012
Left hand part No. 59-0013

Note: Spring catch assembly
No. 59-0002 can be supplied
when required for projected-in
vents.
Specify keeper No. 59-0008.

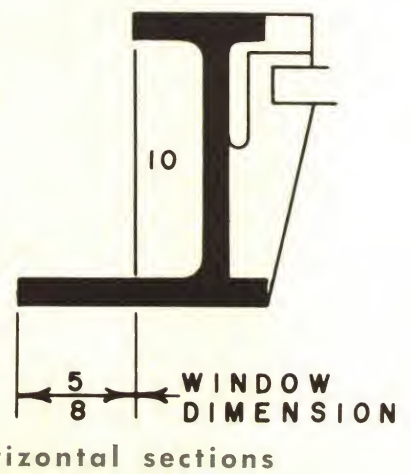
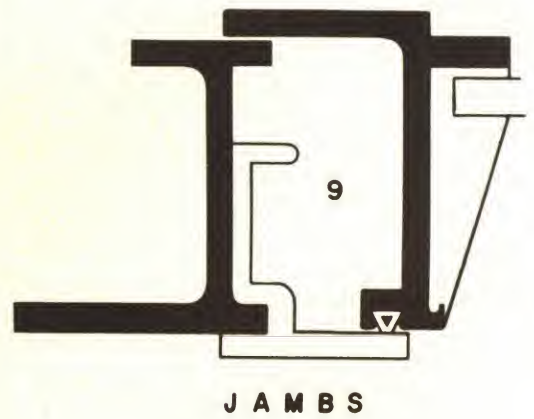
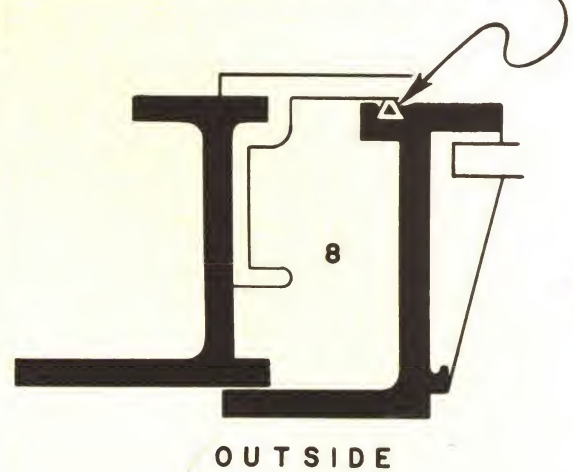


The ventilator corner reinforcement on a Ludman Intermediate Projected Window is cast of white bronze and includes housing for adjustable friction pivots. Friction pivots have non-abrasive friction shoes and concealed adjustable compression springs. Ventilators are connected to jamb bars by ventilator balance arms. All fasteners are aluminum or stainless steel. Friction shoes are limited in travel by a stop in the weatherstrip slide for a 50° ventilator opening.

FULL SIZE SECTIONS



ALL OPERATIVE VENTS ARE WEATHERSTRIPPED



specifications short form

Aluminum Projected Windows are to be as manufactured by the Ludman Corporation of North Miami, Florida in modular sizes as shown on drawings and as recommended by the AIA (American Institute of Architects) Modular Coordination Office.

specifications long form

GENERAL — All windows shall be Aluminum Intermediate Projected as manufactured by Ludman Corporation, North Miami, Florida. They shall conform to modular sizes and types as shown on drawings and as recommended by the AIA (American Institute of Architects) Modular Coordination Office. Windows shall be designed for outside or inside mastic glazing or inside bead. Windows shall include all hardware and erection fittings.

SECTIONS — All extruded aluminum shapes shall be 63S-T5 aluminum alloy. Frame members shall have a minimum thickness of $\frac{1}{8}$ ", designed for outside or inside mastic or bead glazing. Frame members shall be of unequal leg type $1\frac{3}{8}$ " and $1\frac{1}{2}$ " deep horizontally and shall provide $\frac{5}{8}$ " anchorage. Frame and ventilator depth shall be $1\frac{3}{4}$ ".

CONSTRUCTION — Frame and ventilators shall be joined at the corners by a mortise and tenon joint for rigid connections. The projected-out ventilators shall project-out at the bottom and the projected-in ventilators shall project-in at the top. All ventilators shall have $\frac{1}{4}$ " two point weathering contact. All ventilators shall have two adjustable friction pivots with non-abrasive friction shoe and concealed adjustable compression spring mounted in a combination white bronze corner brace and housing. All vents shall have two aluminum balance arms. Maximum vent opening shall be 50° . Ventilators over $2'8\frac{7}{8}"$ wide must have a vertical muntin when vents are pole operated.

MULLIONS — Mullions for manufacturers' standard sizes shall be adjustable from $3\frac{1}{8}"$ to $2\frac{5}{8}"$ wide and shall provide for expansion and contraction. Ludman modular mullions shall be adjustable from $3\frac{3}{8}"$ to $2\frac{7}{8}"$

wide. Mullions and mullion covers shall be fluted vertically for strength and appearance. Mullion bars shall provide a caulking pocket.

HARDWARE — All hardware shall be as manufactured by Ludman Corporation and shall be polished white bronze. All hardware shall be hand operated to securely lock ventilators. Pole operated hardware furnished when specified.

FINISH — Frame and ventilators shall be as extruded and fabricated and shall be free from serious mars and blemishes. Alumilite finish 204E or Alodized finish shall be furnished when specified. All windows shall have a coating of water-clear lacquer.

ANCHORS AND CLIPS — Anchors and clips shall be cadmium plated or zinc chromate painted steel. Bolts shall be furnished.

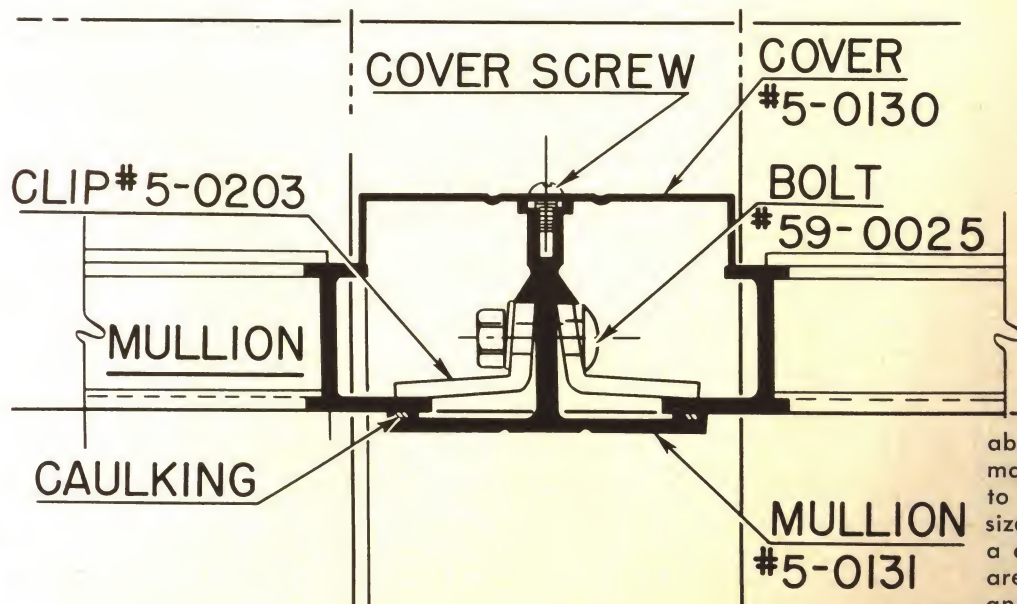
WEATHERSTRIP — Ventilators shall be weatherstripped around their entire perimeter with a vinyl extrusion of special design to give a minimum of air infiltration.

SCREENS — All windows shall be prepared to receive Ludman extruded screens when specified and screens shall be supplied only when specified. Screens for projected-out ventilators shall be mounted inside and shall be of the sliding wicket type unless under screen operators are specified. Screens for projected-in ventilators shall be of the fixed type mounted outside and removable from the inside. Screen cloth shall be of aluminum 14x18 mesh .0126 diameter aluminum wire. Frames shall be of extruded 63S-T5 aluminum and shall have welded corners. Finish shall be as extruded. Splines shall be of plastic material and shall be removable. Clips and screws are included with screens.

GLAZING AND CAULKING — All vents shall be squared. Glaze only with a quality compound. Do not use putty. Cut all glass square to catalog sizes and back bed all glass. After glazing place vents in locked position. Do not operate under 48 hours. Glazing clips furnished by Ludman Corporation. Glass, glazing and caulking furnished by others.

ERECTION — The erection contractor shall set windows plumb and level and shall securely anchor them in accordance with standard installation details or shop drawings as supplied by Ludman Corporation. Erector shall make final adjustments for proper operation of window.

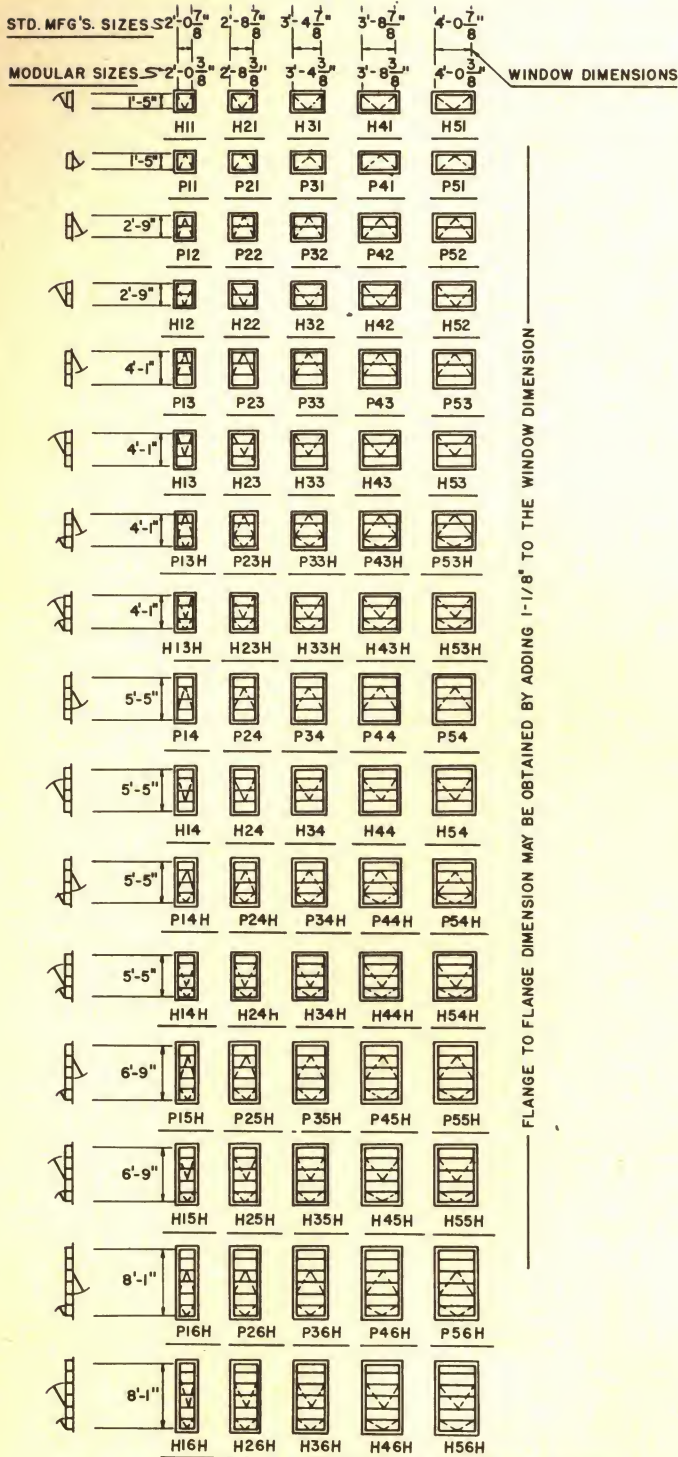
mullions $\frac{1}{2}$ full size



MULLIONS

Mullion assembly permits two way expansion and contraction and is adjustable from $3\frac{1}{8}"$ to $2\frac{5}{8}"$ on standard manufacturers' sizes and from $3\frac{3}{8}"$ to $2\frac{7}{8}"$ on Ludman true modular sizes. Mullion bars also provide for a caulking pocket. Bars and covers are fluted vertically for appearance and strength.

modular architectural

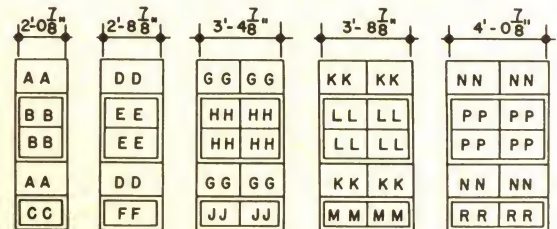


glass sizes—std. mfg's. type

AA- $23\frac{1}{2}" \times 15\frac{5}{8}"$ BB- $21\frac{5}{8}" \times 14\frac{5}{8}"$ CC- $21\frac{5}{8}" \times 13\frac{5}{8}"$
 DD- $31\frac{1}{2}" \times 15\frac{5}{8}"$ EE- $29\frac{5}{8}" \times 14\frac{5}{8}"$ FF- $29\frac{5}{8}" \times 13\frac{5}{8}"$
 GG- $19\frac{1}{2}" \times 15\frac{5}{8}"$ HH- $18\frac{5}{8}" \times 14\frac{5}{8}"$ JJ- $18\frac{5}{8}" \times 13\frac{5}{8}"$
 KK- $21\frac{1}{2}" \times 15\frac{5}{8}"$ LL- $20\frac{5}{8}" \times 14\frac{5}{8}"$ MM- $20\frac{5}{8}" \times 13\frac{5}{8}"$
 NN- $23\frac{1}{2}" \times 15\frac{5}{8}"$ PP- $22\frac{5}{8}" \times 14\frac{5}{8}"$ RR- $22\frac{5}{8}" \times 13\frac{5}{8}"$

Glass sizes are for reference only and should be verified on the job site.

typical glass sizes for std. mfg's. type windows



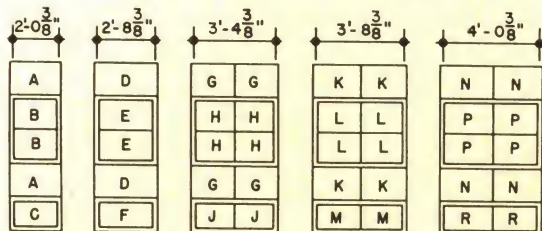
note: Window opening dimension widths shown. Heights typical.

Modular sizes shown are true modular sizes as recommended by the AIA (American Institute of Architects) Modular Coordination Office. Also available in manufacturers' sizes as shown.

note: Standard manufacturers' size type numbers as shown. Example: H11. For modular size type numbers add "M" to numbers—example: MH11. Where vertical muntins are desired use suffix "V"—example: MH11V.

DESIGNED AND ENGINEERED BY LUDMAN

Typical glass sizes
for modular type windows.

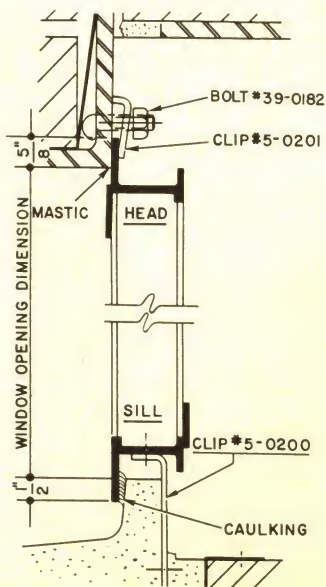
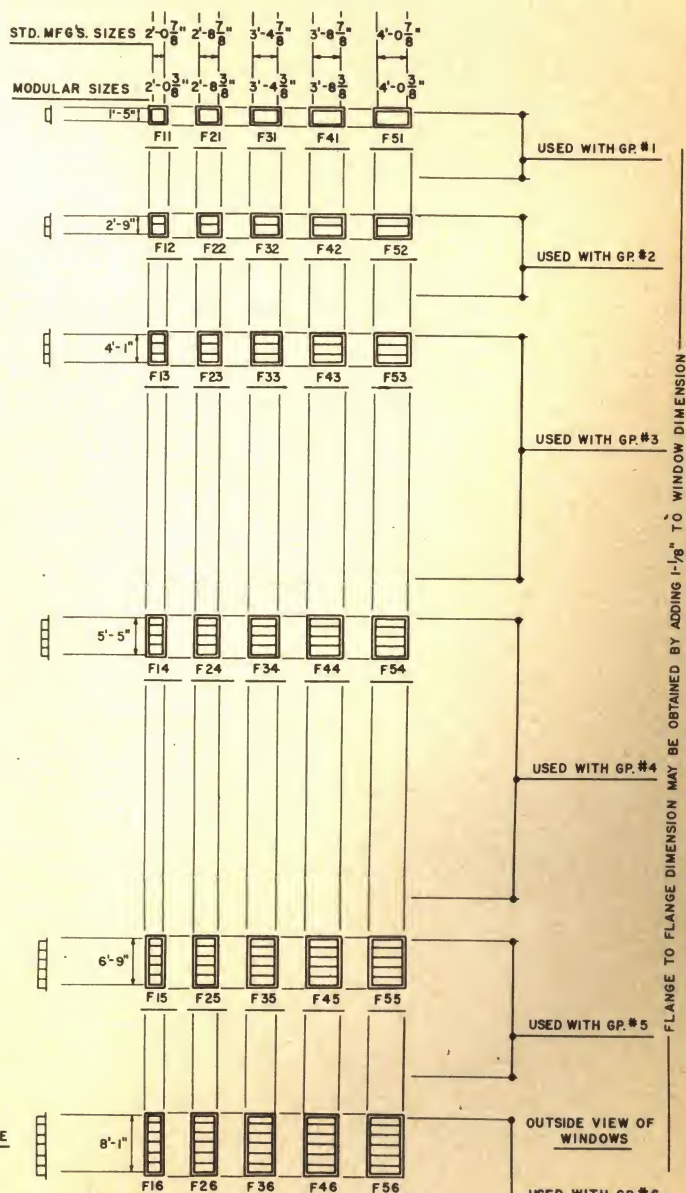
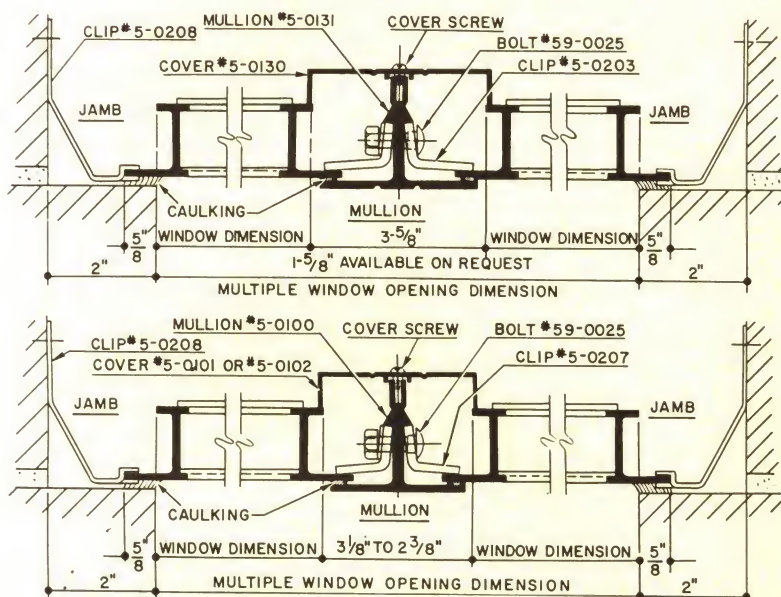


Note: window opening dimension widths shown. Heights typical.

glass sizes—modular type

A- 23" X 15 5/8" B- 21 1/8" X 14 5/8" C- 21 1/8" X 13 5/8"
 D- 31" X 15 5/8" E- 29 1/8" X 14 5/8" F- 29 1/8" X 13 5/8"
 G- 19 1/4" X 15 5/8" H- 18 3/8" X 14 5/8" J- 18 3/8" X 13 5/8"
 K- 21 1/4" X 15 5/8" L- 20 3/8" X 14 5/8" M- 20 3/8" X 13 5/8"
 N- 23 1/4" X 15 5/8" P- 22 3/8" X 14 5/8" R- 22 3/8" X 13 5/8"

glass sizes are for reference only and should be verified on the job site.

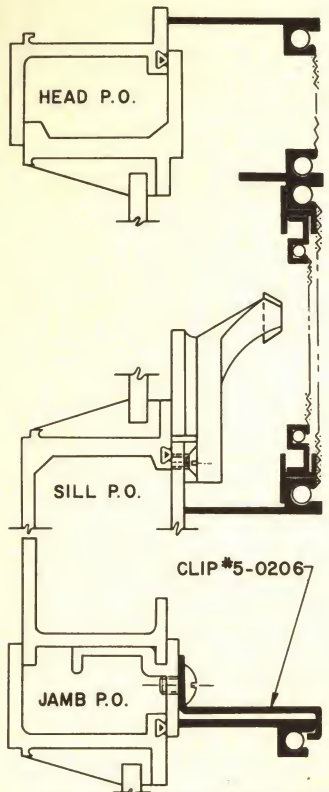


NOTE: FLANGE TO FLANGE DIMENSION MAY BE OBTAINED BY ADDING 1-1/4" TO WINDOW DIMENSION.
 NOTE: STANDARD MANUFACTURERS SIZE TYPE NUMBERS AS SHOWN.—
 EXAMPLE: F11
 FOR MODULAR SIZE TYPE NUMBERS ADD "M".—
 EXAMPLE: MF11

LUDMAN ALUMINUM PROJECTED WINDOW SCREENS

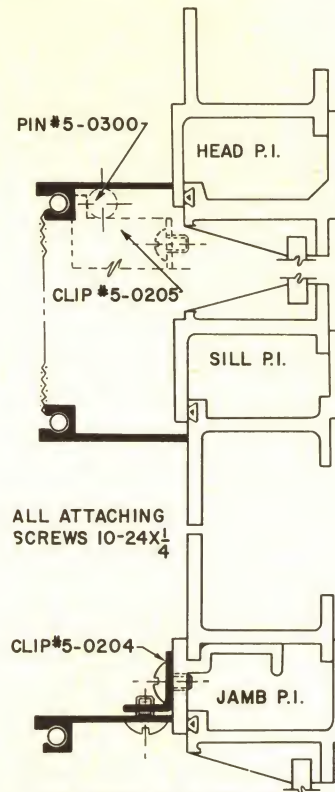
1/2 full size

PROJECTED OUT VENTS



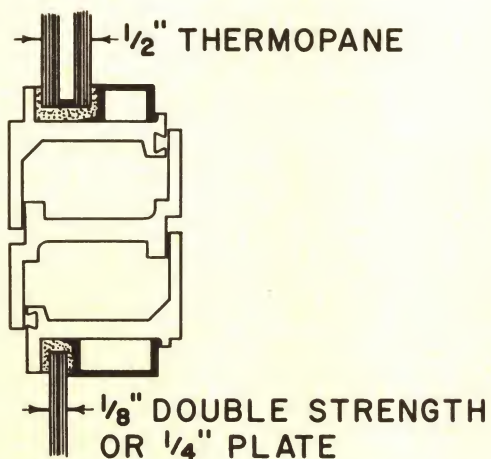
PROJECTED OUT VENT SCREENS
HAVE INSIDE SLIDING WICKETS

PROJECTED IN VENTS



ALL ATTACHING
SCREWS 10-24X1/4

PROJECTED IN VENTS HAVE
OUTSIDE FIXED SCREENS



TYPICAL BEAD GLAZING

glazing bead

1/2 full size

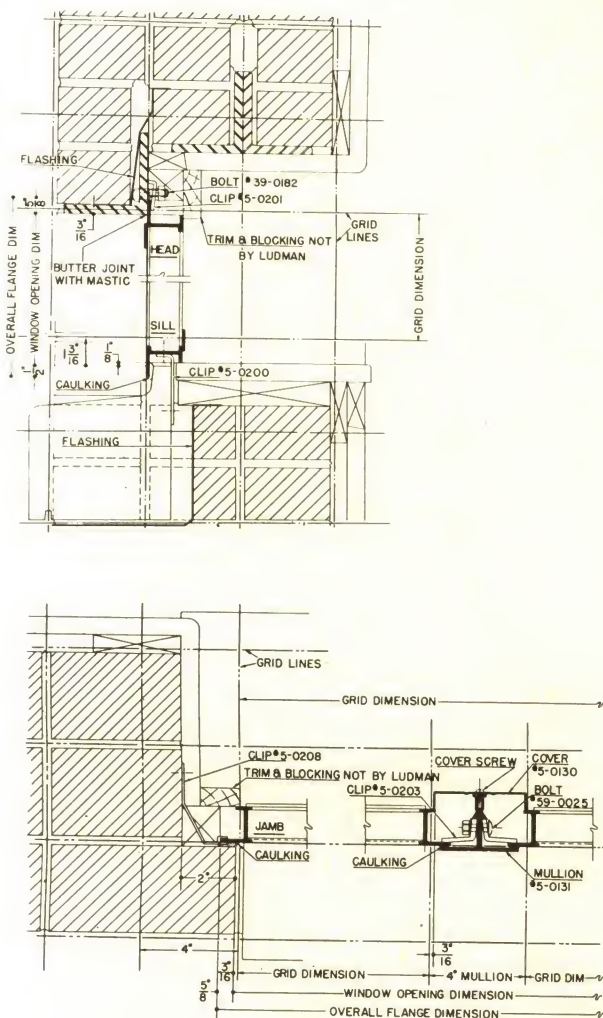
Ludman Intermediate Projected Aluminum Windows can be glazed with inside or outside metal bead if desired. Bead is available for use with 1/8" and 1/4" glass or when specified, 1/2" double glazing.

ENGINEERED AND MANUFACTURED BY LUDMAN

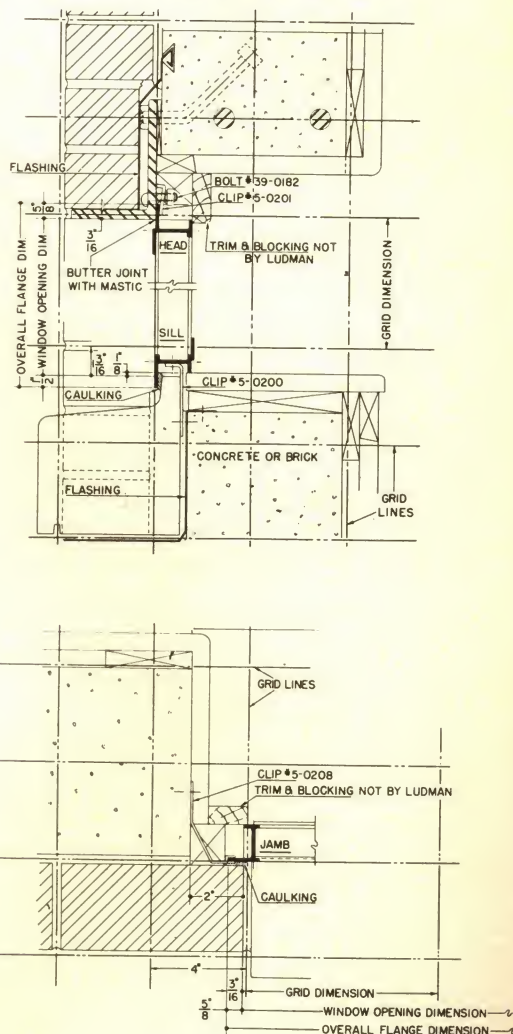
installation details

1½" – 1'-0"

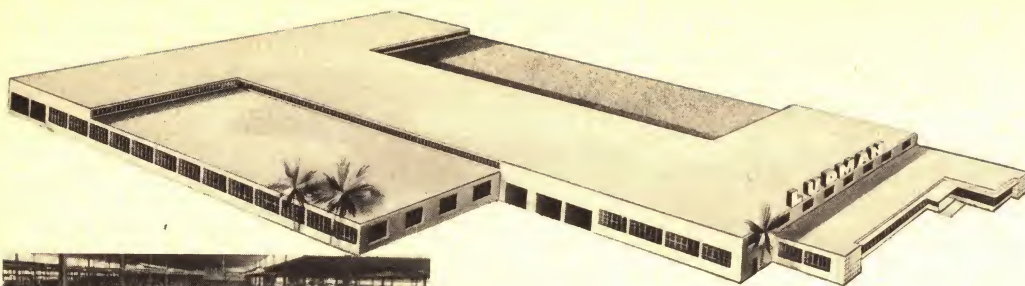
solid brick



structural concrete



LINTEL NOTE—Installations shown are true modular opening as recommended by the AIA (American Institute of Architects) Modular Coordination Office. Face brick should be held ½" clear of the lintel angle to allow installation of the lintel bolt from the inside. The lintel angle should be punched with ¾" diameter holes, 18" on center, at 1½" gauge dimension.



Small parts fabrication section



Ludman's 1250 ton extrusion press



Tool and die shop



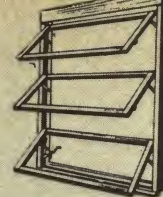
Section of press department

Wherever you go — all over the world — you'll find LUDMAN the foremost name in awning windows, projected windows, jalousies, shower door tub enclosures and aluminum framed sliding glass doors. Ludman's advanced design, engineering skill and unrivaled craftsmanship have earned for its products an enviable reputation for high-standard quality.

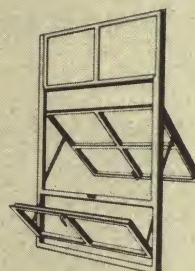
LUDMAN products are produced in the largest plant of its kind in the world . . . where complete quality control is maintained from raw material to finished products.

In value, in quality, in performance, in exclusive features . . .

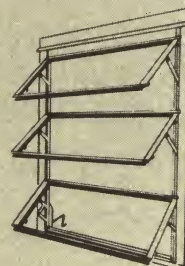
Ludman products have no equal!



Auto-Lok Wood Windows



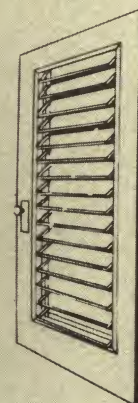
Ludman Projected Window



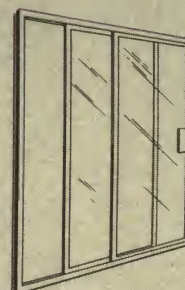
Auto-Lok Aluminum Window



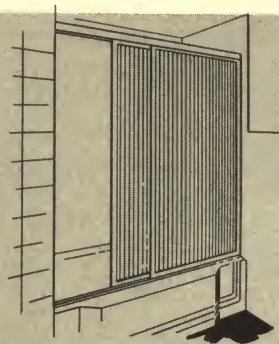
Jalousies



Jalousie Doors



Aluminum Framed Sliding Glass Doors



Shower Door Tub Enclosures

LUDMAN CORPORATION
North Miami, Florida

offices

Atlanta
New York
Chicago
St. Louis
Washington, D.C.
Los Angeles
San Francisco
Houston